ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

PAPER

Vol. XCIV, No. 22 — Thursday, June 2, 1932

International Report Reflects Depression

Although Prices of Practically All Paper and Pulp Products Declined During Past Year, Loss In Revenue Was Offset, to Large Extent, by Lowered Costs of Paper Mill Operations—President A. R. Graustein Declares Properties of Company Are Proving Their Efficiency—Looks to Steady Improvement Under Stabilized Conditions

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 26, 1932—International Paper and Power Company reports that consolidated earnings for 1931 after deducting all interest and other charges senior to dividends on the preferred shares of the company and after year-end adjustments, but before deducting depreciation, amounted to $8,557,189. Dividend payments on the preferred shares of the company charged against surplus during the year amounted to $1,632,565, leaving a balance before depreciation of $6,924,624. Depreciation charges amounted to $7,939,950, resulting in a reduction in surplus for the year of $1,014,326.

Following is a summarized statement:

	Year 1931	Year 1930
Earnings available for depreciation and dividends on I. P. & P. Co. stocks	$8,557,189	$12,695,668
Earnings after depreciation available for dividends on I. P. & P. Co. stocks	618,239	4,206,524

Increasingly adverse business conditions during 1931 were reflected in substantial declines in the prices of practically all paper and pulp products. These declines from 1930 price levels represented in the aggregate a reduction of over $9,000,000 in gross revenues, exclusive of losses due to curtailment of operations. Earnings from power properties also showed a decline from the preceding year. The aggregate loss in revenue was, however, offset to a large extent by economies, chiefly in paper mill operations.

Year end adjustments against earnings, largely reductions of inventory items to lower prices, were exceptionally heavy and account for the fact that earnings for the full year are less than those previously reported for the first three quarters, despite the fact that results from operations during the fourth quarter showed a profit. In the year-end adjustments, news print inventories were written down from $30 a ton to $25 a ton at the mill. This adjustment alone reduced both net earnings and current assets to more than three-quarters of a million dollars.

During 1931 it was impossible to carry out the program for elimination of floating debt because of declining earnings and because sufficient permanent financing to fund construction expenditures in recent years was impossible under prevailing security market conditions. There was, moreover, an increase of over $12,500,000 in bank loans and current notes payable of New England Power Association, due primarily to the acquisition of North Boston Lighting Properties and of Green Mountain Power Corporation. As a result, notes payable to banks and others by International Paper and Power Company and subsidiaries as of December 31, 1931, amounted to $36,321,780, an increase of $10,436,330 over the previous year.

Financing by subsidiaries has made possible large reductions in this figure since the first of the year and on May 20, 1932, the consoldiated notes payable of International Paper and Power Company and subsidiaries stood at $27,957,106, a net reduction of $8,364,674 since the first of the year.

Further Financing Contemplated

Further financing by New England Power Association is in contemplation, with a view to providing at an early date not only for its remaining bank debt (about $7,846,000 of the $27,957,106), but also for the maturity on December 1, 1932, of its two-year notes, which are outstanding in the amount of $20,000,000. Except for this maturity and for the $7,500,000 North Boston Lighting Properties notes also due December 1, 1932, none of the subsidiaries of International Paper and Power Company have any major maturities until 1941.

The physical volume of business done in 1931 was about the same as in 1930. Power production for all properties now controlled totalled 5,584,212,000 kilowatt hours in 1931 as against 5,441,623,000 kilowatt hours in 1930, an increase of 142,589,000 kilowatt hours. Total production of paper and pulp for sale in 1931 was 1,490,240 tons as against 1,494,127 tons in 1930. Although the decline in tonnage produced was slight, it represented a substantially lower rate of operation of the total mill capacity available, as during 1931 the Company's subsidiaries began to operate the new Panama City, Florida, mill, the purchased Tonawanda mill and the two new machines at the Dalhousie mill.

In his remarks to shareholders, Archibald R. Graustein, President of the Company, says:

"Preliminary consolidated earnings figures for the first quarter of 1932 indicate a loss, after interest and depreciation

(Continued on page 46)

Demand for Paper Irregular In Philadelphia

Although Seasonal Specialties Are Fairly Active, Other Grades Are Comparatively Quiet, With Majority of Orders Consisting of Small Tonnages — Kraft Wrapping Paper Quotations Well Maintained—Fine Paper Market Rather Spotty

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 30, 1932—Though the demand for paper is of a seasonal character, the trade looks ahead for improvement. With the exception of the seasonally active lines of paper there is not much trading in volume, most orders being of the hand to mouth type needed to hold consumers over the immediate future, rather than for stocking ahead. While there is lessened price disturbance in the wrapping paper division recent reductions made on cheaper grades of fine paper have brought the usual uncertainty in quotations and keen competitive bidding for those grades included in the list of lowered prices.

Cheaper grades of fine paper that have been subjected to price reductions within the past ten days are bonds, index, book papers and writings. The cuts are among the low priced sulphites. Those grades of book papers subjected to the cutting are made from old paper stocks. However they are the only lines of book papers that are moving in fair quantity, the better grades being slow selling but steady in prices. The market for fine paper is highly competitive.

Wrapping papers show the firmer price trend. Distributors are well stocked and are disposing of many lines of seasonal grades that keep moving in fair volume from warehouses. Bags are drifting, but steady. Converted products, with the exception of hat and dress boxes, are listless.

Jobbers Discuss Trade Problems

With a well attended meeting of jobbers enrolled in its ranks the Philadelphia Paper Jobbers' Association took up trade organization, credits and benefits to be had from united effort at its session in the Elks Club Wednesday evening. Among the topics discussed were those of organization of the Credit Interchange, and the best methods to be followed from various forms submitted. These will be taken up by the Credit-Interchange Committee at a special meeting next week. President Nathan D. Isen was authorized to appoint a special Board of Ethics to promote ethical conduct of the members in business and stimulate co-operation along ethical lines among the associates in the organization for the best interest of the individual and the industry. The charter and title of the organization was taken up by the members and it was proposed that the name be changed to the Paper and Bag Institute of Philadelphia in preference to the present title, when papers are issued under the laws of Pennsylvania.

J. N. Freedman Addresses Jobbers

J. N. Freedman, of the Freedman Paper Company, Washington, D. C., leader in the paper industry of the Capitol, was a guest speaker at the meeting of the Philadelphia Paper Jobbers' Association. He told of the activity of the jobbers in the District of Columbia and surroundings, and then reviewed the friendly relationship existing between paper associates in this branch of the trade in that section and the efforts that will be made to organize the trade there. George W. Sherburne, of the Menasha Products Company, told of the benefits and profits to be derived from the specialty paper market, and dealing in these lines.

American Mills Paper Co. Moves

Having reached the point where larger quarters are needed to take care of growing business, the American Mills Paper Company has acquired an additional three story structure at 1302 Race street where will be located the main offices, sales, display and printing departments. The former location at 2320 Wallace street is to be used for warehousing. The new location gives central city quarters where the firm will conduct its converting business and manufacture food containers, menus, doilies and package goods. The firm, of which James L. Jacquette and J. J. Ganley are proprietors, was organized three years ago and is now enjoying a nationwide business.

Matthias Paper Corp. Exhibits

Charles Matthias, of the Matthias Paper Corporation, has returned to his desk after attending the 14th Annual Convention of the National Paper Box Manufacturers' Association, in Detroit, Mich. The Matthias Paper Corporation, one of the largest paper box supply houses in the nation, had an exhibit in the Book-Cadillac of its full line of domestic box makers' papers. William Daniel, middle west representative of the Matthias Corporation, was also at the convention. During the current week he attended the meeting of the Glazed and Fancy Paper Manufacturers' Association held at the Hotel Commodore in New York. This meeting, held under the administration of John McLaurin, of the McLaurin Jones Company, Ware, Mass., was in line with the policy of the organization to keep the glazed and fancy paper manufacturing and distribution branch of the trade on sound business basis.

Howard Tunstall at Box Makers Convention

The lines of paper box papers made by the A. M. Collins Manufacturing Company, 1518 Walnut street, were exhibited at the Convention of the Paper Box Manufacturers Association, in Detroit, under the direction of Howard Tunstall, representing the box makers' supply division of the local firm. They included fancy box tops and linings.

Whiting Attends Envelope Convention

Allen E. Whiting, head of the Whiting-Patterson, Company, 320 North 13th street, journeyed to the Envelope Manufacturers' Association Annual Convention, held at Lake Wawassee Hotel, Lake Wawassee, Ind., over the week end. Mr. Whiting, who is chairman of the Golf Tournament Committee, left earlier in the week to arrange for the golf match and the contest for the championship play and cup award. There were over 100 envelope manufacturers representing the Eastern and Western Divisions of the association, present at the annual meeting.

Dresvelope Corp. Opens Philadelphia Office

With its own special line of clothing envelopes distributed to various mercantile houses, dress manufacturers, and others linked with the trade, the Dresvelope Corpora-

tion, of San Francisco, Cal., has opened an Eastern office and warehouse in the Bailey Building, this city, to take care of the eastern states requirements. The firm manufactures a specially perfected dress bag which permits of packing, storing or hanging dresses without wrinkling them. Miles Blunt is in charge of the Philadelphia offices and warehouse and covers the entire Eastern States from Denver to the Atlantic.

Hanna Joins Newton Falls Paper Co.

T. C. Hanna, former Philadelphia manager for the Hummel Ross Fibre Company, has joined the Newton Falls Paper Company, Holyoke, Mass., as secretary of the company. Mr. Hanna resigned from his position to go to the factory quarters of the Newton Falls Paper Company, manufacturers of tile papers. The Newton Falls company is owned by the McGraw-Hill interests and manufactures tile papers of various sorts, including those used in wall papers. He represented the Hummel Ross Fibre Company for several years in the local trade and its lines of kraft and specialties.

Paper Chamois Distributed by J. L. N. Smythe Co.

A new development in paper products, a paper chamois that does all the work of skin chamois, has been added to the lines distributed by the J. L. N. Smythe Company, 30 South 6th street. The chamois paper is a pulp product made by the Masland Manufacturing Company, Amber and Willard streets, Philadelphia. All the Quaker City department stores have been giving demonstrations of the uses to which this chamois paper may be put including household application. It is soft and pliable and has every resemblance to real chamois skin doing the same work with the same durability in wear. It is being used extensively for window washing and for cleansing automobiles and sells at popular prices.

Randell Mill Agent for Walton Corp. Products

Formerly representing the distributive business of D. S. Walton & Company, now the Walton Corporation, with plants in Lititz, Pa., and Little Falls, N. Y., W. H. Randell, with sales offices in the Bourse Building, is continuing to represent the latter corporation as mill agent for the lines of sanitary tissues, napkins, and allied lines made by the manufacturers. The Walton Corporation is now confined exclusively to the manufacture of these products, following a long association with the industry as distributors of wrapping papers, bags, and specialties, conducting that business until a year ago when it retired from the distributive branch of the trade to confine its activities to the manufacturing of tissues and napkins under the title of the Walton Corporation. The New York manufacturing division is now confined to the plant at Little Falls, while sales offices and stocking facilities are maintained in the metropolis at 132 Franklin street. In the past Mr. Randell represented the distributive branch of the business in the Quaker City.

Developing New Gummed Papers

Additional equipment has been installed in the plant of the Paper Manufacturers Company, for the development of new gummed specialties and allied products. The new units are added to the laboratory gumming division and will permit of experimental work on new lines to augment the gummed tapes and gummed sheets which the Paper Manufacturers Company created about two years ago as a special division of the business in its extensive plant at the Willow street address along the railroad, with direct loading facilities for carload lots. The present plant for the gummed division is adjoining the old quarters, occupying an entire city square, and is one of the largest gummed paper plants in the East. The firm is kept at full operation manufacturing the Kraft Weld and Perfection gummed tapes for the trade. They include gummed sealing tapes, box makers' stay papers and flat gummed sheets for printers, lithographers and label manufacturers. The firm will announce the development of the new lines as soon as its present experiments are perfected.

Kraft Prices Firm in Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., May 31, 1932—Little change is seen in the local paper market, with prices continuing low and the demand following along. The bag and kraft market seems to be holding firm, with representatives here delighted with the present firmness, although prices are far below what they should be if a reasonable profit is to be made. However, in spite of a slow demand for coarse papers, the market appears to be as well stabilized as that in any of the other grades.

Spring advertising programs have failed to materialize and this fact has been anything but encouraging to the newspapers. Demand for news print in the industrial centers is very low. The rural communities are in better shape this way and demand from these centers does not seem so much affected.

The paper stock market is still in about the same poor shape. Prices being offered by mills are so low there is little encouragement to the local trade.

In a special survey just made public here by the local office of the R. G. Dun & Co., on the paper box trade in Indianapolis, it is shown that a drop in production volume is only 10 per cent, but the dollar volume is down 25 per cent. The survey said in part:

"Production is reduced about 10 per cent in tonnage or units and about 25 per cent in price. In fact, all well rated buyers buying orders large enough to be interesting are buying at about 10 per cent below actual costs or perhaps about 3 to 5 per cent under what the normal cost would be if the paper folding box industry was operating, say, on such goods as are being well consumed at this time, such as cartons for the packing of foods.

"Collections from the retail trade are a little slower than usual with percentage of losses increasing slightly on sales."

Finch, Pruyn & Co. Signs New Agreement

GLENS FALLS, N. Y., May 31, 1932.—Following a conference recently between officials of Finch, Pruyn & Company and representatives of labor unions it was announced that new wage and working agreements had been signed providing for reductions made by competitors which will amount to about six per cent. The former contract expired recently and the company had informed the unions of a reduction to continue temporarily until the new agreement between the two organizations had been made. It is understood that the concern had been allowing a slightly higher scale to its employees than that existing with competitors for the past year. The new agreement is to be placed in effect immediately.

Los Angeles Paper Bag Co. Starts

LOS ANGELES, Cal., May 31, 1932—The Los Angeles Paper Bag Company, of 941 East Third street, will start operations June 1. The company will manufacture shopping bags, plain and decorated, with development plans for manufacturing bags for the grocery and specialty trades.

Boston Paper Market Displays Improvement

While Some Paper Merchants Report Conditions Unchanged, Others Are Experiencing Somewhat Better Demand for Various Standard Grades of Paper—Bonds and Ledgers Are Arousing More Interest Than of Late—Wrapping Paper Only Moderately Active

BOSTON, Mass., May 30, 1932—Taken as a whole, the month has shown a slight improvement over April in the volume of business judging from reports in the trade. While many intimate that they have found no increase in activity, a good proportion say that the demand is better. It is the exception to find any who report conditions as worse. In fine paper there was more interest in bonds and ledgers than during the previous month. The same situation is noted in regard to fine writings and papers for printers. Paper products for special purposes, such as are used by caterers and confectioners, are in more demand. Wrapping paper is called for in moderate amounts. Box board is in fair demand.

Paper stock is extremely sluggish, as quiet as in midsummer, or at least what one would expect in mid-summer. These days sales sometimes take place at a considerable sacrifice, making the price situation uncertain, to say the least. A case is related in which a dealer owned fifteen car loads of corrugated boxes. This commodity usually brings approximately $1.00 to $1.50 more than mixed papers. The lot in question had been stored in a Boston warehouse for a considerable period and storage charges were mounting to such a figure that the owner knew he would be unable to sell and get his money back. The story is told that he sold the lot to a mill at the cost of mixed papers.

Paper Trade Outing Planned

Detailed announcement of the regular June meeting and summer outing of the Boston Paper Trade Association, to be held at the Charles River Country Club, Newton Centre, Mass., Monday, June 6, have been sent out by Secretary J. L. Hobson. The field sports will start at 2 o'clock. "Some of the finest prizes ever offered will be awarded for the following: 'Rolling on the Green' (with better results than Rolling the Bones), Throw a few 'Horseshoes' and improve your luck, 'Putting on the Green' (with lots of chance for the worst putter), 'Casey at the Bat' for three innings, 'A Hunt for Treasure' (with no Water Hazard), 'Making one sheet of paper go a long ways,' and 'Something Different.'"

The sports committee consists of Herbert C. Ham, chairman; W. J. McLellan, Herbert Casey, Frank B. Cummings, John H. Brewer, P. F. Chapin, Fred W. Main and Willard H. Loud.

"The Event of the Year," the golf tournament, includes Handicap Medal Play, 18 holes; Four Ball Only; Medal Play; Kicker's Handicap; Special Event, announcement to be made on bulletin board, and Guests' Handicap Tournament.

This is the tenth year's play for the handsome silver Golf Championship Cup offered by the Boston Paper Trade Association, which must be won three times to become the permanent property of the winner. Winners in the nine years previous were William Stetson, Jr., Asaph Churchill, John L. Munro, E. Lindsey Cummings, Edward Bement, William N. Stetson, Jr., Norman Harrower, W. Edwin Charles and John R. Whitney. The golf committee is composed of William N. Stetson, Jr., chairman, Norman Harrower, W. E. Porter, Jr., Nelson Feeley, "Don" Smith and E. D. Bement.

The dinner Monday evening at 6.45 will be strictly informal. The prizes will be presented to the winners after the dinner and Mr. Cartwright will entertain for a little while with some sleight-of-hand tricks. The officers of the association are: Charles A. Esty, president; Frank B. Cummings, 1st vice-president; F. Bendel Tracy, 2nd vice-president; Thomas H. Casey, treasurer, and J. L. Hobson, secretary.

Paper Box Makers to Celebrate

It is expected that a large number of New England paper box manufacturers and supply men, members and non-members, will attend the joint meeting and outing of the New England Division, National Paper Box Manufacturers' Association and the Carton Credit and Research Bureau at the Vesper Country Club, Tyngsboro (near Lowell), Mass., Tuesday, June 7. "Depression Routed," reads the announcement. The sporting events are to be held before luncheon. Excellent prizes are offered for each event. A. C. Wiswall is chairman of the golf committee. The chief prize for low net score is the Carton Club Trophy, now held by Howard S. Scholes. Other prizes have been arranged so as to give every participant a chance to win something. Jos. W. Gallagher is chairman of the general sports committee. The events include quoits, bowling on the green, putting for non-golfers, and baseball.

The rest of the program is as follows: Luncheon at 1 p. m. in the club-house dining room; business meeting (immediately following luncheon); remarks on timely subjects by Howard P. Beckett, Commissioner, National Paper Box Manufacturers' Association; guest speaker, to be announced; election New England Division officers; dinner at 6 p. m., club house dining room. First class accommodations over night can be arranged in the name of John L. Munro at the club. Howard Wilkins has charge of transportation and Harry Cranmer of the tickets, including luncheon and dinner.

News of the Trade

A sales meeting of the Storrs & Bement Company was held Saturday morning at the office of the firm, at which General Manager John H. Brewer presided. Beckett Text, which the company has recently begun to handle was discussed. This paper is made by the Beckett Paper Company, Hamilton, Ohio. The Storrs & Bement Company has become agent for Riegel's Leatherette, made by the Riegel Paper Corporation, Milford and Riegelsville, N. J.

Rutter & McNaught, Inc., has become representative in the Boston territory of the lines of the Valley Paper Company, Holyoke, Mass. Rutter & McNaught has been handling the bonds and ledgers of the Eaton Paper Company, Adams, Mass., for some time.

The Brown Company, Portland, Me., has developed a new paper, "Wytek," a white kraft paper with a printing surface, especially adapted for wrapping and packaging products at the factory.

An involuntary petition in bankruptcy has been filed against the Globe Paper Company.

Activities of Fox River Valley Paper Mills

Tomahawk Kraft Paper Mill Reported One of Three Kraft Mills That Reached Production Quota In April—Fiber Making Plant to be Built at Rib Lake, Adjacent to Northern Wisconsin Timber Areas—Will Be Financed by Local Capital

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 30, 1932—Closing down of the sulphite mill of the Flambeau Paper Company, Park Falls, Wis., is contemplated at an early date, according to announcement of company officials last week. The company declares the importation of cheaper foreign pulp is the reason, since Swedish, Finnish and German sulphite can be purchased for less than the cost of manufacture at Park Falls. This action hinges somewhat on the fate of the Hawley-Beattie bill in Congress fixing an import duty equal to the differential in foreign currency, it is stated. Thirty-five men will be thrown out of work, the remainder being absorbed in other departments of the paper mill. This will be the second Wisconsin mill to close its sulphite plant as a result of this situation. The Combined Locks Paper Company, Appleton, Wis., took this step about a month ago.

The Tomahawk Kraft Paper Company, Tomahawk, Wis., was one of only three kraft mills that succeeded in reaching its production quota in the month of April, according to S. B. Bugge, general manager. Diversification in the manufacture of other papers and specialties has enabled the mill to make a better record than the 45 per cent average of kraft mills throughout the country. Mr. Bugge attended the recent meeting of the Kraft Institute at Virginia Beach, Va., at which the kraft situation was given considerable study. It is his belief that if Congress passes the tax bill on a reasonable basis, conditions are sure to improve because of the added confidence.

A fiber making plant providing steady employment for forty men is to be built at Rib Lake, Wis., in proximity to the northern Wisconsin timber areas, according to newspaper announcements. The industry will be financed by Rib Lake capital, but the identity of the owners has not been made known. Bass wood, popple and white birch will be converted into fiber. The plant will have a capacity of 20 tons daily.

Sensenbrenner Discusses Business Situation

In an address before Kiwanis clubs of Neenah and Menasha, Wis., last week, F. J. Sensenbrenner, president of the Kimberly-Clark Corporation, Neenah, Wis., outlined some of the causes of the business depression and the factors leading to recovery.

"Government can be of the greatest help in restoration of confidence by a reduction of the tax burden that is strangling business and thereby reducing by that much the opportunity for employment," he said. He pointed out that in 1913 the cost of the federal government not excluding interest was $700,000,000 and in 1931 the cost had climbed to $2,000,000,000, exclusive of interest and war debts. In 1913 state governments cost a total of $383,000,000 and in 1921 the cost had risen to $1,900,000,000. The cost of local government in 1913 was $1,844,000,000 and that cost had risen to $7,126,000,000. "Reduction in the cost of government, the effect of which is acting as a brake on the return of prosperity, Mr. Sensenbrenner added, "can only be accomplished by a recognition of responsibility by the people and a demand by them on governing bodies to economize and put government on an efficient basis."

The most constructive thing done so far toward relieving the depression, in the opinion of the speaker, was the organizing of the Reconstruction Finance Corporation. It is an important factor in the restoration of confidence and its effects will become more apparent as time goes on.

News of the Trade

Reconstruction of the government power dam at Rapid Croche, on the Fox River below Kaukauna, Wis., will be started after July 1, when $60,000 will be available from federal appropriations. The Little Rapids Pulp Company is located near this dam. The large dam at Little Chute, serving the Combined Locks Paper Company, is also being rebuilt of concrete. The total appropriation for this work is $113,930. With these improvements completed, most of the dams in the paper mill area will be in the best of condition.

Litigation between the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., and the township of Hull, on the Wisconsin River, has been brought to an end after being in the courts since 1923. The town sued the company for damages caused by the flooding of highways because of the water level maintained at the power dams. The paper company has agreed upon a settlement which stipulates the payment of $2,400 to the township, and the rebuilding and perpetual maintenance by the company of portions of three roads affected by these conditions. Other suits relevent to this situation have been dismissed. The settlement does not prevent individual land owners from suing the company for riparian damages, however.

Wisconsin superintendents are planning on a large delegation at the annual convention of the American Pulp and Paper Mill Superintendents' Association at Buffalo, N. Y., June 2, 3 and 4. With a Wisconsin man, Roy H. Kelly, general superintendent of the Marathon Paper Mills Company, Rothchild, as national president, considerable promotion has been done in the state to bring out a large attendance. Especial interest is shown in the program features which will produce an exchange of ideas on mill economies to meet the present competition and the depressed business situation.

A branch station of the public library at Green Bay, Wis., has been established at the offices of the Hoberg Paper and Fibre Co., of that city. About one hundred books will be kept on file for loan purposes in connection with the Hoberg educational classes. The collection includes volumes on chemistry, paper making and electricity.

New General Electric Booklets

Magnetic Switches manufactured by the General Electric Company, of Schenectady, N. Y., are concisely described and illustrated in an attractive new booklet, just published. The General Electric Company also recently issued illustrated bulletins on its Single-Stage Centrifugal Compressors, and Type B Direct-Current Motors.

Canada Aims to Enlarge Pulp Exports to U. K.

Leaders of British and Canadian Paper Industries Confer, With View of Presenting Case for Wider Trade Before Forthcoming Economic Conference at Ottawa — British Pulp Importers Ready to Favor Canadian Product If Prices Meet Competition

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 30, 1932—In view of the forthcoming Imperial Economic Conference at Ottawa those interested in the pulp and paper industry both in Canada and in Great Britain have been conferring with a view to presenting a case for consideration designed to enlarge imports into the United Kingdom from Canada of pulp and paper products. Hitherto this trade has not been a large one.

Great Britain imported last year some 350,000 tons of news print, of which 120,000 tons came from Canada; 105,000 tons from Newfoundland; and 125,000 tons from Europe. The importations of pulp were 416,000 tons of dry mechanical pulp, of which 17,000 tons came from Canada; and 500,000 tons of chemical pulp, of which none came from Canada.

Scandinavian mills receive the bulk of the orders. To what extent these orders could be diverted to Canada is a matter for discussion, but British paper consumers and British paper mills have been represented in negotiations with Canadian producers on the matter with prospects of the placing of substantial orders in Canada, on a purely competitive basis.

The case of pulp is particularly stressed, and point is given to this aspect of the question by the fact that when the Scandinavian pulp cartel was formed some time ago there was a substantial increase in the price of pulp to the British importers. They consider, therefore, that another source of pulp is desirable, and Canadian producers are said to be favorable to supplying this on a competitive basis, though at present prices there would be little return over and above cost.

British importers are said not to be favorable to tariff adjustments in the matter, but are ready to favor the Canadian product if prices meet competition. Some advancement along these lines may result from the forthcoming Conference.

Canada Paper Co.'s Shares

Canada Paper Company, a subsidiary of Howard Smith Paper Mills, has been granted supplementary letters patent allowing it to change its 20,000 shares of no par common stock into a similar number of shares having a par value of $5 each. Authorized share capital of the company hereafter will be $3,000,000 of 7 per cent preferred stock, of which $1,250,000 has been issued and $10,000 of common stock.

Price Bros.' Annual Report

The annual financial statement of Price Bros. & Co., Ltd., pulp and paper manufacturers, of Quebec, for the fiscal year ended February 29, 1932, shows an operating loss for the year of $583,769, which compares with an operating profit of $3,308,954 in the previous year and $3,332,798 in the 1929-30 year.

After providing $787,674 for depreciation and depletion, of which $600,000 was of depreciation instead of the usual $1,000,000, a debit balance of $386,282 was shown before bond interest.

Bond interest paid totalled $679,885. Preferred dividends of $419,393 and common dividends of $533,540 were paid, bringing the debit balance to a total of $2,019,100. With a special write-down of inventories totalling $608,066, the Price Bros. deficit was $2,627,166, reducing the profit and loss balance from $2,802,421 at the close of the previous year to $175,255. The working capital position, as shown by the current assets and the inclusion of marketable securities with a value of $1,156,712 at February 29, 1932, as $1,249,969, which compares with $4,575,683 in the previous year and $5,196,333 at the close of the 1929-30 year.

Bank loans have been increased to $4,695,500, as against $2,175,000 at the close of last year, while the item of other loans of $1,580,818 of last year has disappeared.

Accounts payable have been increased, while accrued items are also larger. Employee pension reserve has disappeared.

An auditor's report accompanying the statement says in part:

"From time to time, during the year, advances were made to Quebec Investment Company, Ltd.,—a shareholder, in an aggregate amount of $1,438,500.00, the balance outstanding in respect of such advances as at 29th February, 1932, being $1,173,500,000, which does not include interest accrued since 1st October, 1931. These advances are unsecured and, we are advised still outstanding.

"The amount of $795,658.10 shown as receivable from the Newsprint Institute of Canada, together with other amounts not taken credit for in the attached balance sheet, is the subject of a court action."

The Quebec Investment Company, Ltd., is reported to be one of the Price family's investment trusts. Its officers are members of the Price family: J. H. Price, president; A. C. Price, vice-president; Richard Price, secretary-treasurer. J. Leonard Apedaile was connected with the company as late as last September, when a report was filed with the government, but has since severed his connection, it is understood.

The Balance Sheet

The balance sheet shows that $2,671,465 was realized from investments at February 28, 1932, one day prior to the close of the fiscal year, which reduced the total of the investments account to $2,559,460 from $5,230,926.

Colonel Price, the president, reveals, in his statement, the resignations from the board during the year of Sir Herbert Holt, and of George C. Allen, of New York. Andrew Holt, Sir Herbert's son, has been elected to the board, as has A. A. Aitken, of Montreal.

Flashfold Products Incorporated

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., May 23, 1932—Articles of incorporation have been filed with the secretary of state here by the Flashfold Products, Inc., of Fort Wayne, Ind., formed to deal in paper products. The corporation has an initial capital stock of 1,000 shares having a declared par value of $10 each and the first board of directors is composed of Charles C. Miller, William L. Jones and Cary L. Baird.

Chicago Paper Market Is Still Marking Time

Only Light Demand Experienced for Majority of Standard Grades of Paper—Kraft Wrapping Paper and Bags Continue to Hold Firm, Despite Prevailing Quietness—News Print Conditions Practically Unchanged—Sulphite Bond Situation Improving

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., May 28, 1932—With the summer slack period near at hand Chicago paper merchants are not at all excited about any change in the market for some time to come. The market was characterized during the past week by a singular absence of any news of importance, the majority of the grades continuing to go along with slow volume and little demand. The kraft paper and bag markets continued to hold firm but retail demand was said to be very slow and collections unsatisfactory. Ground woods were reported weak with the news print business also clearly representing the slackening of demand for advertising lineage. Book and cover markets went through the week in what has been, for the past few months at least, characteristic fashion. Demand was for small quantities and reported spotty and prices at a point not conducive to profit. No marked change has been reported in the sulphite bond market although reports had a tendency to show some strengthening. Bonds and ledgers remained about the same. The board market reported continued dullness of demand. Waste papers remained sluggish.

Association Activities

The Chicago Paper Association is making a determined effort to convince its entire membership that it should affiliate, as a group, with the National Paper Trade Association. At the regular meeting of the local organization on the evening of May 24 the matter was fully discussed and beneficial reasons for joining the national body outlined. An example cited was in the case of mills selling certain grades of paper direct to the consumer in this market. The association feels that affiliation with the National Paper Trade Association would help materially in doing away with this situation, inasmuch as the problem then could be treated on a national basis.

The association also appointed Leo S. Altholz, as chairman of the entertainment committee, to immediately select the proper golf club—and golf course—in order that the annual golf outing may be held sometime late in June. The dates for this long awaited event will probably be announced at the June 14 meeting of the Association.

The Middle West Division of the Salesmen's Association of the Paper Industry will hold only two more meetings before Labor Day. The Memorial day meeting has been called off and the two programs for the two weeks following will wind up the season except for the monthly golf tournaments, the next being slated for June 17 at the Sunset Ridge Country Club.

News of the Trade

George G. Cobean, managing vice-president of the J. W. Butler Paper Company, was recently injured, though not seriously, in an automobile accident. He is at present confined to the Presbyterian Hospital but expects to be back at his desk within the next two weeks. Reports indicate that the car Mr. Cobean was driving was hit by a street-car, the net results being a few fractured ribs and minor injuries to Mr. Cobean, damage to the automobile, and one kind of a respite from his office.

Bermingham & Prosser Company, 128 South Sangamon street, Chicago, has been appointed distributor for Adirondack Bond and Adirondack Ledger, manufactured by the International Paper Company. A complete stock of these well known and nationally advertised lines will be carried. Bermingham & Prosser also invade the Chicago paper market this week with a new and interesting broadside on Peacock Folding Enamel, the broadside including the May price list.

Chicago paper houses, and others as well, can look with interest at the plan to advertise the merits of printing as a publicity medium which is going to be a well defined four-year program of the Printing Research and Development Bureau of Chicago. The campaign will include exhibits, sales training courses, field work, publicity and the use of mailing pieces—all designed to instruct and inform buyers and advertisers regarding the place good printing should hold in modern business development. If carried out successfully it will be of considerable benefit to Chicago paper jobbers and distributors—so much benefit, in fact, that some paper firms feel that they should help support such a worthwhile program.

Kodapak, a transparent paper developed by the Eastman Kodak Company, has been added to the J. W. Butler Paper Company line. The new product is expected to take a leading place in the transparent paper field, backed as it is by the facilities of the Eastman Kodak Company, combined with the strategic distributive outlets of the entire Butler organization.

Included in the list of Chicago paper men who are well known to the trade because of their ability to tell their story in effective manner is O. H. Runyan, of Bradner Smith & Co., who goes about giving a very entertaining and instructive stereoptican lecture on the "Romance of Paper". Mr. Runyan's most recent appearance was at the mid May meeting of the Chicago School of Printing.

Westvaco Inspirations for Printers, No. 75 of the series published by the West Virginia Pulp and Paper Company, deals with advertising used in the construction and architectural field. Some of the discussions include "Expressing the Spirit of Modern Architecture"; "When Art Transforms the Landscape"; "New Ideas for a New Age" and "The First Forms of Modern Decoration". As usual, the book is superbly illustrated throughout with four color illustrations; blacks and whites and pen and ink creations.

Coty Machine Co. Busy

WATERTOWN, N. Y., May 28, 1932.—Several more multi-wall bag machines were shipped this week by the Coty Machine Company to the Bagpak Company, of Philadelphia, and other contracts are expected to necessitate capacity operations for some time. Three machines were shipped to the same concern a few weeks ago and the latest consignment completed the order

The local company also shipped this week a multi-wall pasted bag tubing machine to the Wellsburg factory of Arkell & Smith, supplementing a previous shipment to that concern. The latter concern has completely modernized its plant with machinery shipped from this city. It is understood that these machines turn out valve and open-topped pasted bags of from one to five walls at a high degree of speed with various sizes.

Power Project At Abitibi Canyon Progress

Schedule of Operations of Abitibi Power & Paper Co. Right Up to Date—Objective Is Delivery of 175,000 h.p. to Iroquois Falls Pulp and Paper Mill, and 85,000 h.p. to Ontario Hydro-Electric Commission At Sudbury, On October 1, Next

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., May 23, 1932—Ontario Power Service Corporation, the power subsidiary of the Abitibi Power and Paper Company, is believed to be on the point of completing negotiations with the Ontario Government which will assure sufficient funds to complete the power project at Abitibi Canyon. The company, working on funds secured from the $20,000,000 bond issue of two years ago, is right up to date on its schedule of operations which has for its objective completing the project to a point where it can deliver 85,000 h.p. to the Ontario Hydro-Electric Commission at Sudbury and 175,000 h.p. to the company's own pulp and paper mill at Iroquois Falls on October 1.

From the beginning the project was spoken of as a $25,000,000 project and therefore it was evident that additional financing would have to take place either through direct provision of funds by Abitibi Power and Paper Company, which owns the common stock, or by the issue of debentures or preferred stock. In the minds of executives of the company the actual total cost was problematical in view of the fact that the total expense of carving such a huge undertaking out of the wilderness could not possibly be foreseen, but it was hoped to build it for $23,000,000. No unforeseen engineering difficulties of an abnormal character have occurred and the company's work to date has therefore been well within preliminary estimates. The total cost of the work will probably be between $22,000,000 and $23,000,000, and therefore the amount necessary to complete the project may be almost $50,000,000.

Large bondholders, who have inside information as to the terms of the arrangement with the Ontario Government, express themselves as thoroughly in accord with what has been done, but some opposition has developed and critics say that Hydro-Electric Commission has not a ready outlet for most of the power to be delivered at Sudbury in October. On the other hand, it is pointed out that the Commission has constructed large transmission lines hundreds of miles across country from Hunta, on the Canadian National Railway, to Sudbury, especially to receive and transmit this power. Demand for power, it is argued on the other side, was increasing before the Abitibi project began and Hydro wants to provide against the probability that there will be sharp increases once more when prices of base metals improve and when the demand for news print advances to higher levels during the next period of business improvement.

The initial installation is for 275,000 h.p. but the maximum capacity is 375,000 h.p. Until it is evident that the initial delivery will be well absorbed further expenditure will be delayed. The bonds carry an interest rate of 5½ per cent and sinking fund begins on July 1, 1935, with the object of retiring 40 per cent of the bonds by maturity in 1950. It is a closed mortgage.

Toronto Firm Holds Papeterie Display

The paper box trade and the consuming public generally are evincing deep interest in the annual display of Warwick Bros. & Rutter's De Lux holiday papeteries for fall delivery, at the company's factory and warehouse on King street West, Toronto. The display marks a distinct advancement in the manufacture and marketing of Canadian-made merchandise and while there is still the richness, glitter and utility in the boxes as a whole, yet it is noticeable that the trend is towards the moderately-priced box which the public is now demanding. When times are good and money flowing freely the richly lined, covered and packed stationery boxes are big sellers for the Christmas trade. Whereas a year or two ago the public were buying papeteries as high in price as seven and eight dollars they will not be prepared this coming Christmas to pay over three dollars and the vast bulk of the papeteries will be retailing at under a dollar. Warwick Bros. & Rutter have evolved a splendid line of popular-priced merchandise in accordance with the general scheme of economy in all paper products and feature a 25 cent box of stationery just as attractive as that sold at 50 cents a year ago. Prices are graded up from there and the firm are counting on quantity production to justify their policy of turning out the cheaper grade box while retaining its attractiveness. One particularly attractive series is finished with genuine silver and gold metallic covering which have a suggested resale price of a dollar, while there is an innovation line known as the "Make-up Box," which when shorn of the stationery within reveals a mirror on the lid and a receptacle for face powder and other necessities of my lady's toilet. The whole thing is now sold at a price equivalent to what the empty box was heretofore quoted at. Then there is the Royal Windsor series produced in linen and kid finish and covered with a rich suede. The same line carries an old bronze metallic finish. Other standard lines have been retained and it is noticed that cellophane wrapped boxes, *sans* lid, also have a prominent place.

Notes and Jottings of the Trade

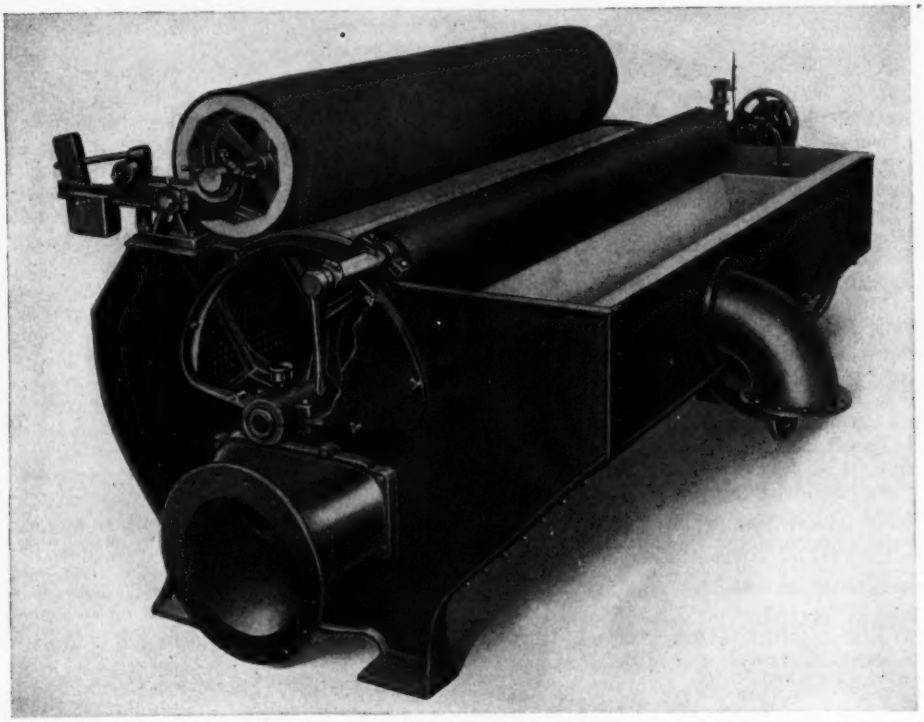
Total water shipments of news print paper from Eastern Canada this season may run up to 100,000 tons, according to an estimate prepared by one closely identified with the industry. Water shipments of news print paper from Canada are becoming of increasing importance and are having a more marked influence on the statistical position of the industry, as water shipments cause greater ups and downs in stocks on hand than do rail shipments.

Construction of a log-sorting building at Petites Pilles, Que., is contemplated by the Canada Power and Paper Company.

The paper mill operated by the Brown Corporation in Le Tuque, Que., began operations a few days ago. The mill, which has been closed for several months, will work four days a week and give employment to about two hundred men. It is expected that in the course of a few months the mill will extend its operations to full time.

Provincial Paper Mills, Ltd., Toronto, have sent out a very attractive mailing piece containing reproductions of covers of the many magazines using various lines of Provincial-made papers in their publications. It is stated that "almost all magazine publishers in Canada use Provincial Papers" and a portion of the text is devoted to answering the question "Why."

A PROVED



Money-Maker
for *all* classes of mills

No matter what price stock your mill uses, it will pay you to look into the possibilities of the Bird Save-All.

Savings in one fine mill come to $45 a day.

A boxboard mill is running five Bird Save-Alls at a handsome profit.

A book-mill is taking the profits from *ten* Bird Save-Alls.

Two glassine mills and a wrapping mill have five apiece.

Let us help you figure the profits from a Bird Save-All installation in your mill. *You can't lose.*

BIRD MACHINE COMPANY
South Walpole, Massachusetts

The BIRD SAVE-ALL

5376

Obituary

William Prescott Barstow

William Prescott Barstow, for over thirty-five years associated with the Smith & Winchester Manufacturing Company, of South Windham, Conn., passed away at his home at Plainfield, Conn., on May 20, after an illness of several weeks. He was in his eighty-first year, having been born at Cantonbury, Conn., June 24, 1851, a son of Luther and Mary Kingsbury Barstow.

After attending public school he entered Plainfield Academy, after which he studied at the State Normal School at New Britain, later teaching school at Brooklyn, Conn. At the age of 19 he entered the employ of a wire goods manufacturing company at Worcester, Mass., as bookkeeper. After serving seven years in this position, he removed to Tama, Iowa, where he accepted the position of general manager of the Tama City Plow Company in that city.

In August, 1885, he returned to South Windham and became bookkeeper for Smith, Winchester & Co. In 1888 he became secretary, and when the company was reorganized in 1905 as Smith & Winchester Manufacturing Company, he was chosen secretary, treasurer and general manager, and continued in these capacities until his retirement at the age of 70 on July 6, 1921. His ability as an executive was a large factor in the success of this business and his kindly and considerate spirit won him esteem among the employees and business acquaintances, far and wide.

In 1872 he was united in marriage to Mary Elizabeth Allen, daughter of Arba and Mary Prescott Allen, who died in October, 1918. Two children were born of this union, Byron Prescott Barstow, now city treasurer of Englewood, N. J., and Cassius Allen Barstow, for many years associated with the Smith & Winchester Manufacturing Company, and now secretary and assistant treasurer of this concern.

On his retirement from business activity in 1921 he retired to his estate at Plainfield, Conn., where he took active interest in religious and benevolent organizations, and in various schools and colleges, to which he gave generous support.

Mr. Barstow was held in high esteem by a large and wide circle of friends and associates, who will long honor his memory.

Hjalmar L. Orrman

DAYTON, Ohio, May 28, 1932—Hjalmar L. Orrman, 84 years old, well known mechanical engineer, died last Saturday at his residence, 870 West Riverside Avenue, this city. He was born at Borga, Finland, on the Gulf of Finland, on February 20, 1848, a son of Otto Wilhelm and Fredericka (Solitander) Orrman.

Mr. Orrman was one of the best-known figures in the pulp and paper machinery manufacturing industry not alone as a manager and excellent business man, but as an inventor as well, a somewhat unusual combination of qualities. He had been associated for 25 years with the James Saunders Company and had been vice president of the firm for more than ten years.

He was given excellent educational advantages in his youth, first attending the public schools at Borga and subsequently the University of Helsingfors, also in his native land, following which he spent two years at Hanover, Germany, studying chemistry. This qualified him for employment in a large pulp and paper mill at Saxony, Germany, where he remained until first coming to the United States in 1876.

His original intention was to only attend the Centennial exposition at Philadelphia, where he hoped to gain an idea of what was being done in the paper industry. Once in this country, however, he became interested in the opportunities for advancement presented and was induced to remain as an employee of the Forrest Paper Company in its chemical pulp plant at Yarmouth, Me. Subsequently he went to Berlin, N. H., where he spent eleven years with the Forrest Fiber Company and then to Mechanicsville, N. Y., where he remained a short time.

Later on he was connected with the Barclay Fiber Company at Saugerties, N. Y., for about one and one-half years and then went to Orono, Me., where he was associated with the Orono Pulp and Paper Company for a year. Following this he spent a like period in the same capacity in the employ of a firm located at Howland, Maine.

In 1892 he first came to Ohio, locating at West Carrollton, where he was in the employ of the Friend Paper Company until 1897. Returning in that year to Europe he went to Stockholm, Sweden, selling American pulp and paper machinery, a course which he also pursued in England, Germany and Russia. In 1904 he returned to the United States and located in Dayton where he engaged in the manufacture of paper making machinery with the James Saunders Company.

Surviving Mr. Orrman are his widow, a daughter, Mrs. Peter P. Westbye, of Peterboro, Ontario, Can., and two grandchildren, Mary Amelia and Eric Orrman Westbye.

Joseph Horace Lindsay

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 30, 1932—Philadelphia associates of Joseph Horace Lindsay, 47 years old, and head of the Lindsay Paper Company, 804 Sansom street, learned of his death last Monday at his home in Centreville, Del. He was born in Wilmington, Del., the son of the late David Lindsay, Sr., secretary of the Jessup & Moore Paper Company 25 years ago, and Ellen Lindsay. The Lindsay family have been associated with paper manufacturing and the paper distribution business for a half a century or more. His brothers, Allen Lindsay and David Lindsay, Jr., are still connected with the industry, the former as sales manager of the Tarentum Paper Company and the latter with the Du Pont concern, the Krafelt Corporation of America, in Wilmington. The two brothers were associated with the deceased in the Lindsay Paper Company, organized more than a quarter century ago, as was their father. They were also owners of the century old mills of the Keystone Paper Company demolished five years ago and long established in Upper Darby.

Max Frank

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 30, 1932—Max Frank, for nearly a half century with John Carter & Co., Inc., highly regarded by his employers and widely and favoraby known in the trade, died Tuesday, May 24, aged 71. Mr. Frank first came to the firm as a boy in September, 1882, and was employed in the shipping room. Later he became a buyer and for many years purchased the flat papers for the company. About three years ago he underwent an operation for amputation of a leg and was subsequently able to return to the office. In November, 1931, it was necessary to amputate the other leg. Mr. Frank survived his wife about a month. A daughter, Mrs. H. Frieze, of Brooklyn, N. Y., is living.

DOWNINGTOWN
RUBBER COVERED
SUCTION
PRESS
ROLLS
Downingtown Rubber Covered Suction Press Rolls are now used on machines making bonds, writings, book, glassine, carbon, coating, greaseproof, jute, rope and rag papers. Rubber Covered Suction Rolls can be used on high clay content papers without shadow marking. Heavier weighting is now possible, which results in more water removal and also insures safer running at increased speeds. The Downingtown Manufacturing Company, Downingtown, Pa.
BRONZE SHELL
RUBBER COVER

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Long Island City, N. Y.—The Union Bag and Paper Corporation, Woolworth Building, New York, has completed plans for a new addition to its plant at 51st avenue and 23rd street, Long Island City, to be one-story, 25 x 100 feet, with one-story storage and distributing unit adjoining. Work is estimated to cost close to $45,000, with equipment. General contract has been let to the Erisco Realty & Construction Company, Long Island City; and superstructure will soon begin.

Boston, Mass.—The Crosby Carton Company, Inc., recently organized by Henry W. Keyes, Jr., 45 Mount Auburn street, Cambridge, Mass., and associates, with capital of 100 shares of stock, no par value, is said to be planning early operation of new plant for manufacture of paper boxes and containers. Mr. Keyes will be treasurer of new company; Joseph G. Crane is president.

Winston-Salem, N. C.—The Mengel Company, Louisville, Ky., manufacturer of boxes and containers, is expanding capacity of branch plant at Winston-Salem, for the manufacture of corrugated paper shipping boxes. Equipment is being installed in an existing building at the plant, and certain machinery is being removed from Louisville factory for such purpose. It is expected to have the unit ready for service at an early date. A. W. Cornwall, Jr., is branch manager at Winston-Salem.

Franklin, Ohio—The Cheney Pulp and Paper Company is said to be planning the early rebuilding of portion of plant recently destroyed by fire, with loss reported at close to $125,000, including building, equipment and stock. Reconstruction is expected to cost close to like sum.

Danville, Va.—The Danville Chamber of Commerce is interested in a project for the establishment of a local mill for the extraction of fiber from raw flax, developing a basic material for paper manufacture. The proposed plant will represent an investment of about $50,000, including equipment. A committee has been appointed to investigate the project.

Rochester, N. Y.—The Eastman Kodak Company, Kodak Park, is operating at its paper department on a basis of from four to five days a week, giving employment close to normal working quota. It is expected to hold to this schedule for an indefinite period.

Long Island City, N. Y.—The Cellotube Manufacturing Corporation, recently organized with a capital of 100 shares of stock, no par value, by Arno Neimand, 411 Woodward avenue, Ridgewood, L. I., and associates, is said to be planning early operation of a local plant for the manufacture of paper tubes and other paper products. Others interested in the new company are Otto Niemand, 2209 Steinway street, Astoria, L. I., and Paul Jensen, 2047 Thirty-third street, Long Island City.

Kaukauna, Wis.—The Thilmany Pulp and Paper Company has interior finishing work under way on new mill addition, previously referred to in these columns, to be used for paper bag service, and unit is expected to be ready for occupancy at an early date. A subcontract for millwork has been let to the Grobben Manufacturing Company, Milwaukee, Wis. General contract is being carried out by the Permanent Construction Company, 735 North Water street, Milwaukee.

Lynchburg, Va.—The Rockford Fibre Container Company, Rockford, Ill., is perfecting arrangements for new branch plant at Lynchburg, where property recently was leased, and work is proceeding on the installation of machinery and equipment. The plant will be used for the manufacture of fiber boxes and containers, and will have an initial capacity of close to 100,000 box units per day. Company will use chestnut wood pulp for raw material, securing from the local mill of the John H. Heald Company. The new plant is reported to cost more than $40,000 with equipment. J. H. Conway is secretary.

New York, N. Y.—The Graef-Cowen Corporation, recently organized by William Cowen, 305 Broadway, and associates, with capital of $50,000, is said to be planning early operation of a local plant for the manufacture of paper boxes and cartons. The company will be represented by M. Murray Simon, 305 Broadway, attorney.

La Tuque, Quebec—The Brown Corporation has resumed operations at its local news print mill, following curtailment for several months. Employment will be given to a working force of about 200 men.

Moholm, Sweden—Tage Ericson, heretofore managing director of Lagerfors Bruk, manufacturer of pulp and paper products, has acquired control of the company, previously held by J. P. Ahlen of Ahlen & Holm, Stockholm, Sweden. The acquisition includes mill property, as well as farms and forest land. The plant was destroyed by fire last July, and the new owner has plans under way for rebuilding of mill, with installation of equipment for production of mechanical pulp, cardboard and other stocks.

Slottsbron, Sweden—Billeruds Aktiebolag, Slottsbron, has begun operations at new Gruvon paper mill near Slottsbron. The plant consists of a sulphate mill, with three large digester units, and paper mill with two main machines. The plant has a rated capacity of about 18,000 tons per annum, including unglazed and kraft paper stocks. It is proposed to develop output close to maximum in near future.

Indianapolis, Ind.—The National Paper Stock Company, 330 West Michigan street, is completing plans for rebuilding portion of storage and distributing plant recently damaged by fire, to be three-story and basement, brick. Estimated cost not announced. Work will soon be placed under way. H. E. Riley is manager.

What Are *You* Doing To Secure Even Drying Across Your Sheet?

THIS:

Are you trying to offset the difference in drying between the front and back of your machine by loading the presses unevenly or by forming the sheet with a lighter caliper on the wet edge? These methods decrease the quality of the product and increase felt costs.

OR THIS:—

Or are you taking advantage of the benefits of the Ross-Grewin System that circulates air through machine pockets by means of diminutive high velocity jets. This method not only insures even drying across the sheet, but also increases drying capacity and life of felts.

Some method must be employed to overcome the problem of uneven drying. The Ross-Grewin System combines proven advantages and economics that recommend it wherever greater drying efficiency is required.

Illustrated bulletin sent on request.

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ROSS ENGINEERING OF CANADA, LIMITED
NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

New York Trade Jottings

John D. Rue, of the Hooker Electrochemical Company, Niagara Falls, N. Y., is a New York visitor this week.

* * *

Dr. Harold Hibbert, professor of industrial and cellulose chemistry, of McGill University, Montreal, Que., is a prominent New York visitor.

* * *

L. S. Henry, mill manager of the International Paper Company's plant at Corner Brook, Newfoundland, is in town this week. He is accompanied by his wife.

* * *

Jack Galewitz, president of the Great Atlantic Paper Company, New York, writes from Watertown to the effect that he has closed a big deal for fifty cars of news print and ground wood papers, which is now in transit and will be converted at the New York plant of the company.

* * *

W. G. MacNaughton, of the manufacturing department of the International Paper Company, New York, visited Montreal, Que., last Thursday, to witness the graduation of his daughter, Elizabeth, from the Royal Victoria College, McGill University, last Thursday.

Union Bag Again To Ask Revision

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., May 23, 1932—Another effort to obtain revisions in assessments of their mill property was launched this week by the Union Bag and Paper Corporation and the Union Bag and Paper Power Co, when the village officials were notified that petitions for writs of certiorari will be made at the session of Supreme Court which is to be held next week in Warren county. Representatives of the corporations will seek the appointment of a referee to conduct the hearings in the case. Supreme Court Justice Heffernan recently quashed certiorari proceedings on the basis that Judge Rogers, who issued the writ, was disqualified to act in the matter because of his relationship with the Mayor of the village.

Action has already been taken by the village officials in an effort to fix a true value on the property in question when application was made recently to the State Department of Finance and Taxation for the services of expert appraisers. They are expected to arrive here during the coming summer when an appraisal of other manufacturing establishments will also be made.

Educators Visit American Writing

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., May 24, 1932.—A group of 41 educators, instructors and students at the Central Trade Printing School of New York City were the guests of the American Writing Paper Company, Saturday, visiting plants of the company and taking copious notes mental or otherwise. The party which numbered nearly 50 was in charge of J. Henry Holloway, principal of the school and the trip was jointly sponsored by the American Company and the Beekman Card and Paper Company of New York City. The group included 18 instructors in printing enrolled in the Hunter College Course of field work connected with the printing industry. The party motored up from New York in 10 motor cars and were given police escort out of New York by the Police Commissioner.

The party took luncheon at the Hotel Nonotuck and returned to New York by way of Jacob's Ladder and the Hudson River route.

Pa Pro Co. Moves to Utica

UTICA, N. Y., May 28, 1932.—Arrangements have been made for the removal to this city of the Glenfield plant of the Pa Pro Co. and operations are expected to be under way within a few weeks. Equipment is now being installed in the large building formerly used as a warehouse by the Skenandoa Cotton Company and about 75 hands will be employed. The company manufactures solid fiber containers for various products such as guns, paper products, knit goods, metal articles, etc., and with the start of operations here plans to inaugurate the production of corrugated shipping cases. The concern recently took over the eastern sales agency for molded pulp forms for shipments made by the Molded Paper Products Company, of Kansas City, Mo.

The company was organized in 1912 and produced bottle caps in a plant at Lowville which was later sold. In 1920 the company built a large addition to its Glenfield plant and it has enjoyed an enviable reputation in serving its customers. Among the officers are H. S. Lewis and J. P. Lewis, prominent paper mill men of Beaver Falls, and H. D. Cornwall, who organized the Holyoke Fiber Box Company, of Holyoke, Mass. The latter is president of the company and received his first contact with the fiber trade about 1905 when he joined the J. P. Lewis Company, of Beaver Falls.

St. Regis to Make Specialty Papers

[FROM OUR REGULAR CORRESPONDENT]

HARRISVILLE, N. Y., May 28, 1932.—It is reported that Arthur J. Erickson, who recently assumed a responsible position with the St. Regis Paper Company, will commence plans immediately for the marketing of a line of specialty papers which will be produced for customers. The local branch is said to be adapted for colored specialty paper containing a large percentage of ground wood pulp, including various lines of manilas, cheviot cover papers, etc.

Mr. Erickson started his career with the Union Bag and Paper Company and served as credit and sales manager before assuming supervision of the specialty paper division. For the past few years, however, he has been connected in an executive capacity with the Crepe-Kraft Co., of Newark, N. J., during which a number of new lines were developed under his guidance.

Whiting-Plover Rebuilt Office

Whiting-Plover Paper Company of Stevens Point, Wis., manufacturer of Artesian Bond and other rag content bonds, ledgers and writings has just completed rebuilding and enlarging of its office. The work was undertaken this winter for a dual purpose—to provide more efficient quarters for various enlarged departments, and to aid the unemployment situation among building trades.

Unusual features include an air-conditioning and cooling system, acoustic material in all offices, sun lamps in executive offices, a considerably enlarged chemical laboratory, etc. A constant temperature and humidity room for proper testing of paper is now under construction, and the experimental paper-making laboratory has been enlarged. The work was done by local companies.

Gillette Fibre Mills File Petition

STILLWATER, N. Y., May 31, 1932—The Gillette Fibre Mills, Inc., of this town have filed a voluntary petition in bankruptcy. The first meeting of creditors will be held in this village within a few days.

Let's get this

STRAIGHT–

this matter of centrifugal pump efficiencies. What does a promise of an exceptionally high efficiency avail if under ordinary operation it is not maintained for a reasonable period? The highest efficiency does not necessarily imply lasting efficiency nor durable construction. It may even carry a doubt of constructive designing. Some facts on this matter . . . facts that you may want to consider . . . are contained in a folder that is yours for the asking . . . Specify Bulletin 51.

WARREN STEAM PUMP CO.

Incorporated **· WARREN, MASSACHUSETTS**

AGENCIES IN ALL PRINCIPAL CITIES

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421

PAPER TRADE JOURNAL

ESTABLISHED 1872

Published at 34 North Crystal St., East Stroudsburg, Pa. Executive and Editorial Offices, 10 East 39th St., New York, N. Y.

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Price, Per Copy, 10 Cents — United States, Per Annum, $4.00
Canada, including tax, $7.50; Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. XCIV — New York, June 2, 1932 — No. 22

PAPER PRODUCTION TREND UPWARDS

The pulp and paper statistics just issued for the first three months of the year by the American Paper and Pulp Association disclose a more encouraging situation in the industry than was commonly supposed. The trend for paper production was slightly upward, indicating that present production is still at the rate of about 9,000,000 tons annually, which was the total production for last year. This is about 80 per cent in excess of the figures for 1921 and only about 20 per cent lower than 1929 which was the peak year in the industry. All this indicates that the adverse business conditions are affecting paper less probably than any other basic industry.

COMPARATIVE REPORT OF OPERATIONS BY IDENTICAL MILLS FOR THE MONTHS OF JANUARY, FEBRUARY AND MARCH, 1932, AND PAPER REVIEW FOR THREE MONTHS IN 1932 AND 1931.

Grade		Production	Shipments	Stocks End of Month
News print	March, 1932	100,034	94,282	38,677
	February, 1932	87,157	86,638	32,925
	January, 1932	94,247	94,550	32,406
Book: (Uncoated)	March, 1932	71,323	71,260	39,512
	February, 1932	65,191	68,698	39,449
	January, 1932	64,773	66,233	42,956
Paperboard	March, 1932	155,160	153,253	58,074
	February, 1932	144,950	145,936	56,167
	January, 1932	138,814	140,570	57,153
Wrapping	March, 1932	39,774	41,258	40,368
	February, 1932	38,447	39,935	41,852
	January, 1932	40,096	40,641	43,340
Bag	March, 1932	12,468	12,570	5,879
	February, 1932	12,393	12,476	5,981
	January, 1932	11,540	11,429	6,064
Writing (Cover, specialties)	March, 1932	26,582	26,059	44,821
	February, 1932	25,246	25,429	44,230
	January, 1932	25,701	26,676	44,413
Tissue	March, 1932	6,831	7,081	7,554
	February, 1932	6,959	6,663	7,804
	January, 1932	7,920	7,426	7,508
Hanging	March, 1932	1,278	1,314	3,604
	February, 1932	1,915	1,710	3,640
	January, 1932	1,996	2,342	3,435
Building	March, 1932	5,070	5,043	3,112
	February, 1932	4,091	4,033	3,085
	January, 1932	3,314	3,859	3,027
Other Grades	March, 1932	18,096	16,666	16,606
	February, 1932	14,928	15,966	15,176
	January, 1932	14,417	15,546	16,214
Total, All Grades	March, 1932	436,616	428,786	258,207
	February, 1932	401,277	407,484	250,309
	January, 1932	402,818	409,272	256,516
Total, All Grades	3 Months, 1932	1,240,711	1,245,542	258,207
Total, All Grades	3 Months, 1931	1,336,626	1,333,873	273,999

COMPARATIVE REPORT OF OPERATIONS BY IDENTICAL MILLS FOR THE MONTHS OF JANUARY, FEBRUARY AND MARCH, 1932, AND PULP REVIEW FOR THREE MONTHS IN 1932 AND 1931.

Grade		Production	Used	Shipped	End of Stocks Month
Groundwood	March, 1932	74,143	70,651	1,488	60,388
	February, 1932	66,362	64,543	1,373	58,384
	January, 1932	73,563	71,275	747	57,938
News Grade Sulphite	March, 1932	28,878	28,664	499	9,008
	February, 1932	26,220	26,206	438	9,293
	January, 1932	26,959	26,815	409	9,717
Bleached Sulphite	March, 1932	21,607	20,357	1,528	2,542
	February, 1932	19,741	17,785	1,717	2,820
	January, 1932	18,101	16,554	2,138	2,581
Easy Bleaching Sulphite	March, 1932	1,664	1,527	246	1,312
	February, 1932	1,986	1,937	250	1,421
	January, 1932	2,537	2,108	301	1,622
Mitscherlich Sulphite	March, 1932	5,679	3,222	2,229	1,834
	February, 1932	4,556	3,064	1,932	1,606
	January, 1932	4,481	2,137	2,576	2,046
Sulphite (Total All Grades)	March, 1932	57,828	53,770	4,502	11,696
	February, 1932	52,503	48,992	4,337	12,140
	January, 1932	52,078	47,614	5,424	12,966
Kraft	March, 1932	26,427	19,806	5,495	3,928
	February, 1932	25,571	20,304	5,379	2,802
	January, 1932	24,648	20,182	5,003	2,914
Soda	March, 1932	15,716	13,419	2,284	2,481
	February, 1932	15,499	12,642	2,776	2,468
	January, 1932	15,584	12,919	2,896	2,387
Other Grades	March, 1932	386	314	48	340
	February, 1932	565	400	46	316
	January, 1932	498	441	36	197
Total, All Grades	March, 1932	174,500	157,960	13,817	78,833
	February, 1932	160,500	146,881	13,911	76,110
	January, 1932	166,371	152,431	14,106	76,402
Total, All Grades	3 Months, 1932	501,371	457,272	41,834	78,833
Total, All Grades	3 Months, 1931	529,769	477,791	52,238	69,689

The inventory position of paper also is quite satisfactory under all the circumstances. The report, which follows, reflects the fact that great quantities of paper are still being produced and that this paper is being regularly consumed:—

"At the end of the first quarter of 1932 the trend of paper production in the United States showed a moderate upward movement and according to identical mill reports to the Statistical Department of the American Paper and Pulp Association, the total production for the three months was 7 per cent below that of the corresponding period in 1931.

"The trend of total pulp production was moderately downward and the first quarter total production was 5 per cent below the level of the same period last year. Imports of the major grades of pulp increased substantially, offsetting the decline in domestic production. Our imports from Canada did not show any increase but the imports from Scandinavian countries increased materially over 1931 and in the case of bleached sulphite and kraft, were larger than in 1930.

"The inventory position in nearly all the major grades of paper showed improvement over a year ago and the total of all grades was about 6 per cent below the level of March, 1931. Inventories of domestic manufacturers of bleached sulphite, kraft and soda pulp were materially below the level of a year ago.

SWEDISH PRODUCTION

[FROM OUR REGULAR CORRESPONDENT]

Swedish news print mills turned out during March 22,738 metric tons of paper, compared with 23,234 tons during the preceding month and 17,968 tons during the corresponding month of last year. Production for the first three months of the current year has totaled 69,123 tons as against 68,174 tons in the preceding quarter and 47,956 tons during the corresponding quarter of last year.

TAPPI Fall Meeting Committee Organizes

A group of members of the Technical Association of the Pulp and Paper Industry met at the Nonatuck Hotel, Holyoke, Mass., on Wednesday, May 25, to work up plans for the fall meeting of the association, to be held in Holyoke, September 14-16, 1932. Helen U. Kiely, chief chemist of the American Writing Paper Company, was chosen as general chairman of the convention. Miss Kiely will be assisted by the following committees: Administration; W. O. Johnson, Conrad Hemond, L. C. Reynolds, W. L. Foote. Program; E. O. Reed, J. C. Sanburn, William Whiting, F. C. Ladd, L. M. Yoerg. Arrangements; E. C. Tucker, W. L. Nixon, G. H. Knox, R. L. Bosworth. Publicity; R. W. Pattison, R. M. Snell, R. W. Perry, D. K. Bartlett, Claude Smith. Ladies: F. A. Curtis.

Plans are being made to provide for one of the finest meetings the Technical Association has ever had. Because of its excellent location, Holyoke will have much to offer anyone interested in pulp and paper manufacture, since it is one of the great paper manufacturing centers of the country.

The Technical Association last met at Holyoke, in 1917, and many who are members of the association today, remember that occasion with great pleasure. Even though the association was very young at that time, the attendance at the convention was very great.

The Hotel Nonatuck in Holyoke has been designated as the convention headquarters. The room rates range from $2 up. Reservations should be made direct with the hotel. All making reservations should indicate they are planning to attend the Technical Association meeting.

Holyoke is in the foothills of the Berkshires, which is an ideal section in which to spend one's vacation. There are beautiful highways and the scenic splendor of the community in September is beyond description.

Those who attended the meeting included the following: W. O. Johnson, Strathmore Paper Company, Woronoco, Massachusetts; E. C. Tucker, Chemical Paper Manufacturing Company, Holyoke; R. B. Wolf, Weyerhaeuser Timber Company, Longview, Washington; L. C. Reynolds, American Writing Paper Company, Holyoke; W. L. Foote, B. F. Perkins Sons, Holyoke; Helen U. Kiely, American Writing Paper Company, Holyoke; J. C. Sanburn, Strathmore Paper Company, West Springfield; E. O. Reed, Crane & Company, Dalton; D. K. Bartlett, American Writing Paper Company, Holyoke; R. W. Pattison,, American Writing Paper Company; R. I. Bosworth, Chemical Paper Manufacturing Company, Holyoke; L. M. Yoerg, American Writing Paper Company, Holyoke; C. W. Perry, Esleeck Manufacturing Company, Turners Falls; F. A. Curtis, American Writing Paper Company, Holyoke; G. H. Knox, Crocker McElwain Company, Holyoke; W. G. Hendrich, Collins Manufacturing Company; N. Wilbraham, H. F. Bigelow, Weyerhaeuser Timber Company, Clinton, and R. G. Macdonald, secretary of TAPPI.

Employee Strike at Union Bag Mill

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., May 28, 1932.—Several hundred employees of the Union Bag and Paper Company went out on strike early this week after a conference with leading officials had failed to settle the dispute over wage and working conditions. Officials of the company announced last week plans to observe the open shop policy and that the unions would not be recognized in determining a wage scale. A wage reduction was also announced but refusal of the company to deal with the unions is believed to be largely responsible for the walkout.

It was learned that all units are affected by the strike with the exception of the bag factory where employees are not unionized. It is possible, however, that workers in that division will also leave their jobs out of sympathy with the others. Union officials claim that about 275 hands are affected.

Officials of the company stated that the mills will probably be closed temporarily which will eventually cause a suspension of activities in the bag factory unless paper can be obtained from another source. The decision to strike followed efforts of the Chamber of Commerce to settle the difficulty and it was said that the various unions were allied together in their determination not to work under open shop conditions.

Representatives of the State Labor Department are said to have arrived here in order to carry on negotiations towards a settlement but little progress has been made. It is understood that no attempt will be made to start the paper machines under the open shop system for a few weeks at least.

Niagara Paper Mills Sold

LOCKPORT, N. Y., May 31, 1932.—Assets of the Niagara Paper Mills of this city, were sold at public auction for $80,500 says the *Lockport Union*. The sale was held in the Federal court room in the Post Office, and was conducted by Benjamin F. Sherman, Buffalo, trustee in bankruptcy.

The high bidders were Ellsworth Storrs, of the law firm of Storrs and Storrs, attorneys for the Niagara County National Bank and Trust Company, and Henry D. Warren of Stockwell, Campbell and Warren, attorneys for the Lockport Exchange Trust company.

The bid is $500 over the amount of mortgages held by the two banks on the mill property located at 340 Mill street. Other bidders included Charles E. Dickinson of this city and Michael J. Noonan of Niagara Falls. The sale was confirmed by Referee George D. Judson.

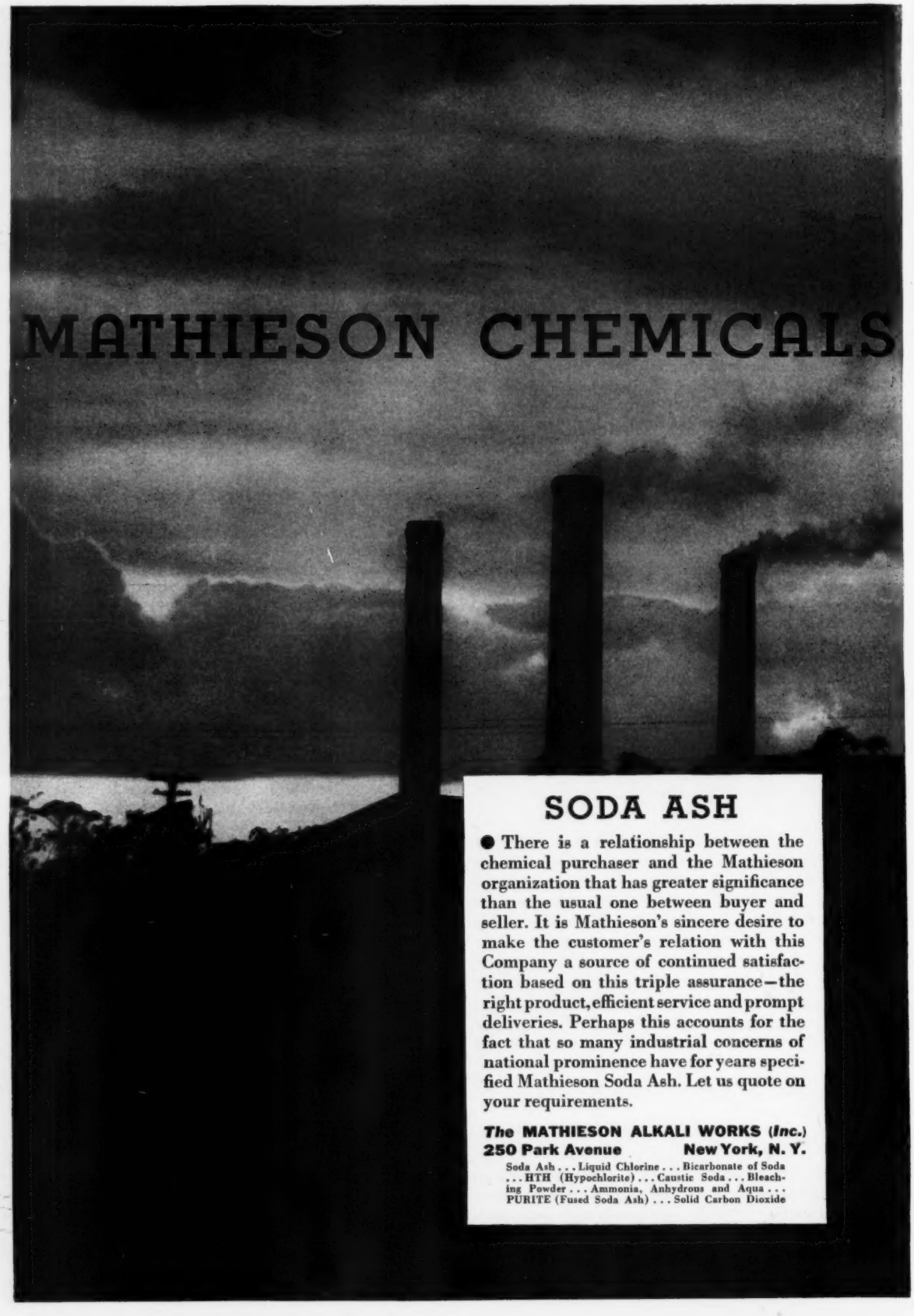
The sale included all the assets of the defunct concern except bills and accounts receivable, and embraces the mill property and real estate, and all equipment, machinery and office fixtures necessary to run the plant. The sale is subject to liens and mortgages.

Only one bid was received when the property was first put up, free and clear of all encumbrances, one of $10,000 offered by Mr. Dickinson. There were no bids when real estate, machinery, raw materials, finished products and office equipment were put up at separate bids, which the trustee would consider.

Not Responsible for Tax Deficiencies

OSWEGO, N. Y., May 31, 1932—The Federal Board of Tax Appeals has handed down a decision ruling that the Oswego Falls Corporation, successor to the Oswego Falls Pulp and Paper Company and the Skaneateles Paper Company, is not responsible for income and profits tax deficiencies alleged to have been due from 1917 to 1920. The taxes are said to amount to about $95,000. It was also decreed in the same ruling that the company was liable for a tax deficiency of $31,161 for 1921. The statute of limitations were said to have voided payment of the taxes for the other years.

Whether or not the company was directly responsible for the deficiencies in tax of its predecessors was the principal question involved in the proceedings. The Commission ruled that it was responsible but that it was not secondarily liable as transferee of assets.



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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

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Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Pulp and Paper Testing

Freeness Tester, Frank M. Williams. U. S. pat. 1,828,210, (Oct. 20, 1931).—Under the screen of the instrument is a foot valve consisting of a disk at least as large as the screen, and which can be lowered out of contact with it to allow the water in the stock to flow through the screen. Under the screen is a conical vessel having two orifices at the bottom, one discharging to waste and the other discharging into a vessel provided with a float carrying an indicator enabling the volume of water collected or the freeness to be read directly. The two outlets are at the same level and each is surrounded by a ring or deflector so designed that, when the flow of water from the stock can all be handled by the smaller orifice (connected to waste), none of it passes through the larger orifice.—A.P.-C.

Bursting Strength Tester. Alfred Schopper and Gustav Dalen assignors to the Firm Louis Schopper. U. S. pat. 1,819,-719, (Aug. 18, 1931).—A Mullen-type tester is provided with an elongation indicator consisting of a pointer mounted on the shaft as a pulley around which passes a thread, one end of which is connected to a plate resting on the test piece and the other end of which is connected to a counterweight. Electrical or mechanical means are provided to apply a brake to the pulley when the test piece bursts so as to automatically arrest the indicating pointer.—A.P.-C.

Measuring the Freeness of Pulp. Francis L. Simon, Hervey J. Skinner and Raymond M. Fuoss assignors to Skinner and Sherman, Inc. U. S. pat. 1,822,604, (Sept. 8, 1931).—The freeness of the pulp is measured by placing samples of the pulp prepared in the form of drained pats between the plates of a condenser and measuring the dielectric capacity of the pulp. In determining the dielectric capacity of the pulp, recourse is preferably had to the application to the measuring condenser of high frequency current produced by an oscillator of the thermionic tube type. A secondary circuit containing the condenser is loosely coupled with the oscillator circuit and tuned to it. When the capacity of the condenser is changed, the circuit is thrown out of tune and the degree to which it is thrown out is indicated by a change in the current of the secondary circuit which can be read by a suitable instrument. The freeness may be measured continuously by draining a small stream of pulp onto a continuously moving screen through which the water is drained to produce a moving sheet of pulp that is passed between the plates of the condenser.—A.P.-C.

Apparatus for Measuring the Moisture Content of Mechanical Wood Pulp. Axel C. Andersen. U. S. pat. 1,821,605 (Sept. 1, 1931).—Moisture content of a pulp web is measured by forcing two needles of conducting material completely through the web and measuring the current passing between the two needles. In order to obtain continuous measurement of the moisture content of a travelling web, series of such needles are mounted on two disks which are rotated at the same peripheral speed as the web, so that the needles successively perforate the web.—A.P.-C.

Apparatus for Measuring the Stiffness of Flexible Materials. Tobias Dantzig and Esther C. Peterson, dedicated to the Government and the People of the United States. U. S. pat. 1,824,-395, (Sept. 22, 1931).—Two flexible rolls are mounted near the upper edge of and vertically to a vertical board, which supports an inclined straight guide, the longitudinal axis of which passes through the line of contact of the rolls. The end of a test strip of convenient length and width is engaged between the roll and the latter are slowly turned until the free end of the test strip barely touches the guide. The stiffness number of the material (defined as a number proportional to the cube root of the elastic modulus) is read off directly on a scale marked on the guide.—A.P.-C.

Microscopic Testing of Wood Cellulose. A. Herzog. Kunstseide 13:203-206, 239-243, 275-280, 311-320 (1931); C. A. 26: 1773.—The literature on the microscopy of wood cellulose is summarized and tables are given showing the various physical and chemical characteristics of cellulose from different types of wood. —C.J.W.

Specialties

Spinning, Preserving and Coloring Paper. Joseph D. Cramer and Albert J. Rogers assignors to Chase Bag Co. U. S. pat. 1,823,258 (Sept. 15, 1931).—A narrow thin strip of paper is spun into a strand and in the same operation is treated with a preservative and coloring solution which possesses strengthening and water-repelling properties.—A.P.-C.

Paper Making Composition. George A. Richter assignor to Brown Co. U. S. pat. 1,824,837 (Sept. 29, 1931).—A stable, white, long-fibered pulp of high alpha-cellulose content is used with a stable, white, short-fibered wood pulp of high alpha-cellulose content in free condition.—A.P.-C.

Cellulosic Material Suitable for Paper Making. Arlie W. Schorger assignor to C. F. Burgess Laboratories, Inc. U. S. pat. 1,829,763 (Nov. 3, 1931).—A mixture of fibrous and gelatinized cellulose is dried and dehydrated in an organic material, such as alcohol, acetone or benzene, which is liquid at room temperature and capable of displacing the contained moisture and water of hydration, to obtain a product having a pliability and opacity substantially greater than, and shrinkage less than, that of a product resulting from air drying of similar material, and which is resistant to regelatinization when subsequently wet with water. —A.P.-C.

Transfer Sheet. Helena S. Sadtler. U. S. pat. 1,832,660, (Nov. 17, 1931).—A transfer sheet suitable for ornamentation or marking of fabrics comprises a paper base with a design thereon composed of wax with which is incorporated a mixture of zinc dust in chemically equivalent proportion with sodium bisulphite also used in the mixture and a small proportion of polymerized formaldehyde in powder form and a finely powdered vat dye.—A.P.-C.

Wall Board, Sheathing Lumber, etc. Carl Marx and Elton R. Darling assignors to Pacific Lumber Co. U. S. pat. 1,828,029, (Oct. 20, 1931).—Boards are formed with an inner layer of compacted felted fibers such as those of redwood bark and an outer layer of similar fibers which individually are encased in a cementitious material in insufficient quantity to form a distinct layer on the surface of the board.—A.P.-C.

Multi-Ply Paper Suitable for Advertising Signs, etc. Carleton Ellis. U. S. pat. 1,835,766 (Dec. 8, 1931).—Paper is impregnated with sulphur, resinated with a sulphurized homolog of phenol which retards crystallization of the sulphur when it solidifies from the molten state, such as sulphurized cresol-xylenol resin.—A.P.-C.

Diaphragms for Telephone Apparatus. Hal E. Fruth assignor to Western Electric Co. U. S. pat. 1,833,642 (Nov. 24, 1931). —A diaphragm is associated with a damping member comprising a number of superposed sheets of paper impregnated with a phenolic condensation product and having a wavy contour formed by curing the impregnated paper.—A.P.-C.

Paper. John H. Watson and Hugh E. Anderson. U. S. pat. 1,834,363 (Dec. 1, 1931).—A sheet of rubber is interposed between two webs of paper immediately after the paper is formed on the wire and before couching, and the superposed sheets are then pressed and dried between heated rolls so that the rubber is melted by the heat of the rolls and is pressed into the pores of the paper. —A.P.-C.

Proofing Wallpaper. A. Carpmael assignee of I. G. Farbenindustrie Aktiengessellschaft. Brit. pat. 336,244 (Jan. 5, 1929).—Hydroxy-di- or -tri-arylmethanes, e.g., the product from formaldehyde and 2 or 3 molecules of para-chlorophenol, or the tetrabrominated product from cyclohexanone and 2 molecules of phenol, are applied as fungicides.—A.P.-C.

Manufacture of Cardboard. P. B. Burchardt. Brit. pat. 354,-829 (May 16, 1930).—A number of layers of chemical wood pulp in sheet form and paper, with outermost layers of the latter, are compounded by pressure after application of asphalt, tar, or similar moistureproof material.—A.P.-C.

Drying of Fibrous or Cellulosic Goods. R. Bennet. Brit. pat. 339,817 (Dec. 30, 1929).—The material, e.g., board, preheated if desired, is placed in contact with air, carbon dioxide, or other suitable water-soluble gas under pressure to promote solution of the gas in the water contained in the capillaries of the material. On subsequently reducing the pressure below atmospheric the dissolved gas is released and drives the capillary water to the surface.—A.P.-C.

Adhesive Papers and the Like. Papeteries Navarre. Brit. pat. 343,248 (Dec. 20, 1929).—The paper is coated with a layer consisting of a mixture of barium sulphate, gelatin and dextrin. Such a paper is rendered adhesive by being dipped in water.—A.P.-C.

Stencil Sheets. Armand de Waele assignor to D. Gestetner, Ltd. U. S. pat. 1,828,766 (Oct. 27, 1931).—Sheets such as yoshino paper are coated with a composition containing a cellulose ester such as nitrocellulose and a hydroxy fatty acid of the ricinoleic series in the free state as a tempering agent.—A.P.-C.

Trade Marking Carbon Paper. William Mendel. U. S. pat. 1,828,374 (Oct. 20, 1931).—The desired design is applied to the supporting paper or tissue with a cellulose nitrate solvent including ethylene glycol monoethylether acetate and waxy, oily transfer material is then applied.—A.P.-C.

Stencils for Copying Purposes. Max Deseniss assignor to Alexander Feurich. U. S. pat. 1,823,260 (Sept. 15, 1931).—Stencil sheets comprise a porous foundation sheet such as Japanese paper with a coating containing a chlorination product of rubber and a softening agent such as castor oil.—A.P.-C.

Paper Coating Composition. Donald B. Bradner assignor to Champion Coated Paper Co. U. S. pat. 1,826,726 (Oct. 13, 1931).—A web of paper is coated with an aqueous mineral coating composition containing a mineral pigment such as clay in major amount and an adhesive such as casein in minor amount, and pin hole defects in the resulting coating are reduced by dispersing a small proportion of pine oil in the composition.—A.P.-C.

Stencil Sheet. Shinjiro Horii. U. S. pat. 1,825,798, Oct. 6, 1931).—A sheet adapted for stencilizing by pressure comprises a base of fibrous material such as Japanese yoshino paper with a coating comprising esters of polysaccharides such as starch acetate, mannan acetate, cellulose acetate or cellulose nitrate and blown camelia oil.—A.P.-C.

Stencil Sheet. Shinjiro Horii. U. S. pat. 1,829,750, Nov. 3, 1931).—A base of fibrous material such as yoshino paper is coated with a composition comprising esters of polysaccharides such as cellulose nitrate or acetate and mannan acetate, a metallic soap of naphthenic acid such as that of calcium, the ethyl ester or other suitable alkyl ester of naphthenic acid, and a tempering agent such as oils, etc.—A.P.-C.

Stencil Sheet. Kenneth W. Carr assignor to Ditto, Inc. U. S. pat. 1,830,980 (Nov. 3, 1931).—A base sheet such as yoshino paper is provided with a coating comprising a vinyl resin and modifying agents such as aluminum stearate, peanut oil and dibutyl phthalate with a solvent such as toluene and ethylene glycol monoethyl ether.—A.P.-C.

Composition Flooring. Emil C. Loetscher. U. S. pat. 1,825,-877 (Oct. 6, 1931).—A base of fibrous material such as fiberboard has its surface impregnated with bakelite and one surface of the base material is covered with a layer composed of a granular mineral substance such as quartz together with fused bakelite.—A.P.-C.

Impregnating Felt with Material Such as Tar and Asphalt. Frank B. Manker, assignor to The Barrett Co. U. S. pat. 1,831,630, Nov. 10, 1931).—The felt is heated to remove a portion of the naturally contained moisture, moisture is added so that the total moisture content is substantially uniform across the entire width of the felt, and the latter is then saturated with material such as tar or asphalt.—A. P.-C.

Wall Board. John A. Wiener and John B. Harmon. U. S. pat. 1,831,940 (Nov. 17, 1931).—Wood is treated with hot water to soften the fibers, shredded, disintegrated with air currents, and the fibers are discharged into a stock tank containing a heated fluid such as water and mixed with a suitable quantity of mill

refuse, the mixture is pumped into refiners where it is reduced to fine particles, the latter are discharged into a second stock tank where they are thoroughly agitated and mixed, and then passed to a felting machine—A. P.-C.

Sheathing Boards from Redwood Bark. Elton D. Darling as signor to Pacific Lumber Co. U. S. pat. 1,828,028 (Oct. 20, 1931).—The roughly shredded bark is leached with water to remove tannins, treated with a dilute alkaline solution such as 1 per cent caustic soda under heat and pressure, washed free from alkali, comminuted in the presence of water, and the resulting suspension is passed through riffle tanks to remove "tree-sand," the fibers are further beaten in water, separated from the water and dried in board form. A suitable sizing may be added.—A. P.-C.

Treated Paper for Artificial Flowers. Robert C. Ham, and Marion T. Ham assignors to R. C. Ham & Co., Inc. U. S. pats. 1,831,559 and 1,831,560 (Nov. 10, 1931).—*No. 1,831,559*—Artificial flowers are made of paper coated with a composition containing rubber, magnesia and lime. *No. 1,831,560* relates to the similar use of suitably colored crepe paper having a thin elastic matfinished coating rendering the paper waterproof, the coating being substantially transparent and colorless and consisting of a nitrocellulose varnish containing a pale gum (the coating extending over the edges of the paper).—A. P.-C.

Laminated Sheet Material. George A. Richter assignor to Brown Co. U. S. pat. 1,829,157 (Oct. 27, 1931).—A waterlaid ply of substantially unbeaten cellulose fibers in loosely felted condition is associated with a ply of cellulose fibers bonded together with gelatinized cellulose. One of the plies may be impregnated with rubber and the other with nitrocellulose.—A. P.-C.

Method of Preparing Impregnated Paper Products. Camille Dreyfus and George W. Miles assignors to Celanese Corp. of America. U. S. pat. 1,829,585 (Oct. 27, 1931).—A cellulose derivative such as cellulose acetate in fibrous form is added to a paper stock; the material is formed into sheets, and the cellulose derivative is fixed in the sheets, as by heating in the presence of added plasticizer.—A. P.-C.

Kelp Product Suitable for Use with Asbestos in Paper Making. Arthur L. Kennedy assignor to Plastic, Inc. U. S. pat. 1,830,607 (Nov. 3, 1931).—Kelp is ground with an alkali such as sodium carbonate; the alkali is neutralized with an acid such as dilute sulphuric acid and, after washing, water is removed from the material to form press-cake, suitable for admixture with asbestos. —A. P.-C.

Stiffening Material for Boots and Shoes. Wallace C. Bennett assignor to Bennett Box Co. U. S. pat. 1,825,625, Sept. 29, 1931.—A wood-pulp layer and a fabric layer are used together with a stiffening composition comprising a soluble silicate and rubber latex applied to both layers and securing them together adhesively. —A. P.-C.

Cellulose Suitable for Conversion into Cellulose Derivatives. George A. Richter, Milton O. Schur and Royal H. Rasch assignors to Brown Co. U. S. pat. 1,826,825 (Oct. 13, 1931).—A material suitable for conversion into derivatives such as cellulose nitrates comprises a mass of narrow waterleaf paper strips of mercerized fiber.—A. P.-C.

Manufacture of Sheet Material Containing Fiber, Rubber and Bituminous Substances. Reed P. Rose assignor to General Rubber Co. U. S. pat. 1,825,422 (Sept. 19, 1931).—Dispersed rubber and bituminous material are introduced into a beaten paper pulp, the solid material from the dispersion is coagulated on the pulp (suitably by the use of aluminum sulphate) and the material is formed into sheets which are suitable for box-toe manufacture, etc. —A. P.-C.

Felted Sheet Material Containing Bitumen. Charles L. Keller assignor to The Richardson Co. U. S. pat. 1,825,869 (Oct. 6, 1931).—A bituminous pulp is formed containing a relatively hard bitumen and a quantity of relatively softer bitumen is mixed with this pulp (this softer bitumen having been rendered non-adhesive, as by emulsification), and the combined stock is felted on a paper machine and the product is dried and heated so that the two bitumens flux together into a homogeneous saturating material.—A. P.-C.

Waterproof Paper and Process of Making It. Lester Kirschbraun assignor to The Flintkote Co. U. S. pats. 1,827,700 and 1,827,701 (Oct. 13, 1931).—A normally adhesive, fusible waterproof binder such as asphalt is introduced in molten condition into a beaten fibrous pulp and uniformly distributed in the pulp by agitation, a protective colloid is added to stabilize the binder and prevent sticking, the material is formed on a paper-making machine, and the water is removed to cause the bitumen to regain its adhesive character and coalesce and unite with the fibers. No. 1,827,700 covers the process and No. 1,827,701 the product.—A. P.-C.

Safety Paper. Samuel S. Himmell. U. S. pat. 1,825,796, (Oct. 6, 1931).—A safety paper suitable for tickets, etc., is formed with a paper layer having an identifying marking with a surface coating of non-paper material, such as a mixture of casein, whiting, china clay and satin white, which covers the marking, the outer surface layer being adapted for printing upon and being light-permeable so that the identifying marking is visible.—A. P.-C.

Stencil Sheets. S. Horii. Brit. pat. 350,699, (May 22, 1930).—Fibrous material is coated with polysaccharide esters, sperm oil, and a tempering agent (fatty or hydrocarbon oils) dissolved in a suitable solvent mixture.—A. P.-C.

Stencil Sheet. W. W. Triggs assignee of Selectograph Co. Brit. pat. 339,952 (Sept. 16, 1929).—Glue or gelatin (32 parts) is soaked in cold water, and, after heating the mixture to 70° C., linseed oil (12 parts) containing a drying agent (litharge) is stirred in until the whole is emulsified. Then 40 parts of glycerin are added, the emulsion is thinned with hot water, and when cool applied to a fibrous support such as yoshino paper.—A. P.-C.

Stencil Sheets or Stencil Paper. W. W. Triggs assignee of Ditto, Inc. Brit. pat. 352,460 (April 8, 1930).—Yoshino paper is coated with a solution of unpolymerized phenol resin (Bakeland's product B) in admixture with shortening agents, e.g., metal soaps, waxes, barium sulphate, magnesium carbonate, etc., and softeners such as oils, or mixtures of neatsfoot oil with butyl phthalate or hydrogenated cottonseed oil, and the synthetic resin is subsequently polymerized (to product C) by heat.—A. P.-C.

Preparation of Coating Material for Paper. C. Arnold, assignee of I. F. Laucks, Inc. Brit. pat. 356,287 (April 17, 1930).—Oleaginous seeds, such as soya bean, cottonseed, castor seed, tung nut, etc., preferably oil-mill press-cake, are ground and extracted with, for example, 2 litèrs of 0.5 per cent slaked lime solution per 100 parts of meal at 15° C. for about 12 hours. The separated liquor is then heated to 50° C. and its pH is adjusted to 4 with dilute sulphuric acid to precipitate the protein. This is collected, washed, and dried at about 32° C. Other alkalies, such as caustic soda or sodium sulphite, may be used in the preliminary extraction, but a subsequent prolonged treatment with dilute milk of lime is necessary to modify the protein so that the dried product is readily dispersible in aqueous sodium carbonate, borax, etc. These proteins are particularly suitable for coating mixtures containing satin white since they are unaffected by free lime.—A. P.-C.

Manufacture of Coated Papers. F. W. Bailey, S. F. W. Crundall, H. Spence, and P. Spence and Sons, Ltd. Brit. pat. 360,034 (Aug. 1, 1930).—Paper is coated with a "color" or "enamel" containing finely-divided and close-textured, anhydrous calcium sulphate in complete or partial substitution for barium sulphate, together with china clay and the usual adhesives.—A. P.-C.

Manufacture of Pulps Comprising Fibrous Material and Heat-Plastic Waterproofing Material. Richardson Co. Brit. pat. 341,542 (Oct. 18, 1929).—At least 70 parts of molten bitumen are mixed with wet paper, equivalent to not more than 30 parts of dry fiber, until homogeneous; more water is then added partly to break up the adhesive mass, and the pulping is completed with further addition of water in a beating engine.—A. P.-C.

Panels or Backings for Oil Paintings. H. Wade, assignee of Bakelite Corp. Brit. pat. 357,204.—A fibrous base, *e.g.*, pulpboard or superimposed sheets of paper or fabric, is impregnated with a reactive synthetic resin and subjected to heat and pressure. —A. P.-C.

Absorbent Paper. J. Strachan. Brit. pat. 344,846, Dec. 5, 1929).—Finely divided colloidal cellulose, e.g., waste vegetable parchment of rayon that has been ground to pass 60 mesh, is mixed with rag, wood or esparto pulp, and the resulting stock is run on a paper machine. The ratio of colloidal cellulose to wood or rag pulp may conveniently be 2:1 for blotting paper and 1:1 for stereo-molding paper.—A. P.-C.

Cleaning and Polishing Material in Sheet Form. E. E. Straw. Brit. pat. 355,323 (May 20, 1930).—Soft, porous, waterleaf paper is impregnated with a soap emulsion of paraffin, water and abrasive (such as calcium carbonate).—A. P.-C.

Manufacture of Rubbered Paper. R. & W. Watson, Ltd., J. H. Watson and H. E. Anderson. Brit. pat. 355,470 (July 25, 1930). —A sheet of rubber is interposed between two webs of paper immediately after the latter have ben formed on the wire and before couching; the whole is then pressed and dried between heated rollers.—A.P.-C.

Treatment of Hard-Paper Material. H. Römmler Aktiengesellschaft. Brit. pat. 318,490 (Aug. 29, 1929).—In order to render it moistureproof hard-paper material is coated on both sides with a liquid intermediate condensation product of a phenol with an aldehyde, or the coatings are applied by means of a carrier such as linen which has been dipped in or sprayed with the liquid artificial resin; the coated material is afterwards subjected to heat and pressure.—A. P.-C.

Manufacture of Sand Paper. A. E. White assignee of Minnesota Mining and Manufacturing Co. Brit. pat. 356,183 (March 1, 1930).—A mixture of abrasive particles with a liquid waterproofing adhesive, consisting of a drying oil (linseed or tung oil), rosin, mineral driers, and thinners, is applied to a flexible backing and the whole is dried at 55° to 65° C. The abrasive surface is subsequently treated with a sizing compound, of similar composition to the adhesive but with a larger proportion of thinners, which is also applied to the back of the sheet, before, during, or after application of the abrasive mixture.—A. P.-C.

Manufacture of Paper for Electrical Condensers. British Thomson-Houston Co., Ltd., assignee of A. L. Allen. Brit. pat. 363-191 (Jan. 26, 1931).—A close, uniform paper (less than 0.0005 in. thick) suitable as a dielectric in condensers, can be made from kraft pulp if the pulp is washed and then beaten under carefully controlled conditions of gradually increasing severity until the requisite degree of hydration is attained. The total time of beating may be about 36 hours.—A. P.-C.

Manufacture of Transparent Paper. S. D. Warren Co., assignee of S. Boyer. Brit. pat. 362,322 (May 15, 1931).—Well-beaten sulphite paper is damped to a water content of about 30 per cent with water containing up to 8 per cent glycerin and passed through a calender stack comprising two sets of 5 or 6 hard-steel rolls separated by a set of 2 or 3 soft, *e.g.*, cloth-jacketed rolls. The temperature of the steel rolls should be such that the water content of the paper on reaching the soft rolls is 10 to 12 per cent and on leaving the second set of steel rolls is 6 to 7 per cent.—A. P.-C.

Translucent or Transparent Papers. Morland and Impey, Ltd., and A. G. Rendall. Brit. pat. 359,744 (Nov. 7, 1930).—Copying paper is treated on the side to which the ink is applied with a spirit of water ink, such as flake-white or other ink-permeable pigment in admixture with aqueous gum or glycerin.—A. P.-C.

Creping of Paper. W. W. Rowe. Brit. pat. 359,154, Sept. 22, 1930.—Kraft paper is coated with a water-repellant thermoplastic material, such as bitumen at 205°, cooled to room temperature, and fed on to a creping roll, the temperature of which is so adjusted that the bitumen becomes plastic and adheres to the roll. After creping (by stripping with a doctor blade), the paper is stretched and passed between hot rollers in contact with a suitable backing material.—A. P.-C.

Decorative Treatment for Paper Lamp Shades. J. E. Brown and E. C. H. Cooper. Brit. pat. 342,269 (Oct. 28, 1929).—The dried material is coated thickly with a slow-drying varnish and heated for a short time at about 160° C. to produce wrinkling. The coating is then dried and hardened at 60° C.—A. P.-C.

Stuff Preparation Developments in 1931*

By James Coghill[1]

This committee deals with the handling and treatment of stuff from the time the pulp is introduced to the beater room until its delivery to the head box. Deinking, bleaching and continuous washing do not come under this heading, but are handled by other committees.

Major developments of the past year take the form of determined although, as yet, incomplete efforts on the part of machinery builders and others to meet the demand of the paper manufacturer for a continuous and economical "hydrator" which will do the same character of work as the best of beaters with less power and at the same time be a continuous process machine and subject to easy control of the degree as well as the quality of treatment.

Seven different types of machines have been brought forward in the last few years. None of these machines have as yet fulfiled the requirements to the extent that they have been generally accepted by the industry to replace beaters.

Some are by no means new but the subject is so important a one to the industry that the principles on which these various machines operate might well be mentioned.

The rod mill as built by several manufacturers.

A continuous ball mill hydrator recently announced.

A machine using jordan type of tackle but operated on an automatic batch system.

A machine built after the fashion of the jordan with modified tackle operated at high speed and with reversed direction of flow.

A machine which rolls the stock out between stationary and rotating discs which are adjusted against each other.

A machine which treats the stock between two discs rotating in opposite directions and adjusted against each other.

A machine employing hydraulic or fluid shear for treatment of fibers entrained in the fluid between smooth, wetted surfaces. One of these travels at high speed while the other is adjusted against it for obtaining high fluid pressure and small clearance.

So much effort is being spent in this direction that it seems probable that the beater will shortly be placed on the list of obsolete machinery for most of the work it is now doing.

Another trend in the stuff preparation department, which is decidedly noticeable at the present time, is toward a better regulation of consistencies. This trend is general throughout the industry and is sufficiently important to take its place as a major development in our processes.

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 15-18, 1932.

[1] Chairman TAPPI stuff preparation committee.

Temperature Effects on Equilibrium Between Paper Moisture Content and Humidity *

By R. H. McKee[1] and J. S. G. Shotwell[2]

The relation between the moisture content of paper and the humidity of the atmosphere with which it is in equilibrium is a subject that is of great interest both to the paper maker and the paper user.

Herzberg[3] (1912) and Klemm[4] (1911) seem to have been among the first to do anything at all definite on this subject. Since their work was reported a very considerable amount has been published upon the subject; but because most of this work was done with paper testing in mind a more or less constant temperature was used, and the moisture content was considered to be proportional to the relative humidity.

The authors are interested in the conditioning of paper during its manufacture, storage and use, and have found: (1) that temperature plays a very important part in the relation, (2) the moisture content of the paper is proportional to the absolute humidity of the atmosphere between 60 and 110 deg. F.

Herzberg[3] considered that this moisture content of paper is proportional to the relative humidity provided that temperatures of less than 77 deg. F. are used. He implies, but does not so state, that above 77 deg. F. temperature will have an effect.

Klemm,[4] on the other hand, considered that the moisture content depended on the absolute humidity and showed that both temperature and barometric pressure had a decided effect.

Kress[5,6] and his co-workers published the first really thorough investigation on this subject, and after testing some twenty different kinds of paper, concluded that for a given temperature the moisture content was proportional to the relative humidity. If different temperatures were used or even the same temperature, a closer relation would be found between the absolute humidity and the moisture content. Their results are shown in Figs. 1 and 2.

Ross Campbell[7] was the next to study this subject thoroughly and he concluded that the moisture content was independent of the furnish and kind of paper and was a function of the relative humidity. His figures, however, when plotted as we have done, show a closer relation to the absolute humidity. See Figs. 1 and 2.

Several investigators[8,9,10] have published work on the relation between the moisture content of the raw materials used in paper making and the atmospheric humidity. They agree that while at any given temperature the relation is one depending on relative

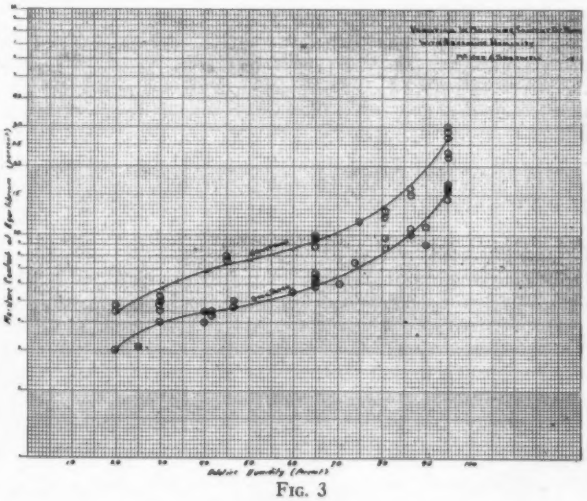

FIG. 3

humidity, an increase in temperature, relative humidity kept constant, decreases the moisture content.

Jarrell[11] investigated the variations in moisture content with changes in atmospheric humidity with the temperature kept constant at 70 deg. F. He concluded that temperature had no effect but did not give experimental data to prove it. He did show, however, that if the paper was transferred from a condition of high humidity to a low one, a higher moisture content would be obtained than if the opposite change had been carried out.

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 15-18, 1932.
Contribution of the TAPPI paper testing committee.

[1] Member TAPPI, professor of chemical engineering, Columbia University.
[2] Student, Columbia University, New York, N. Y.

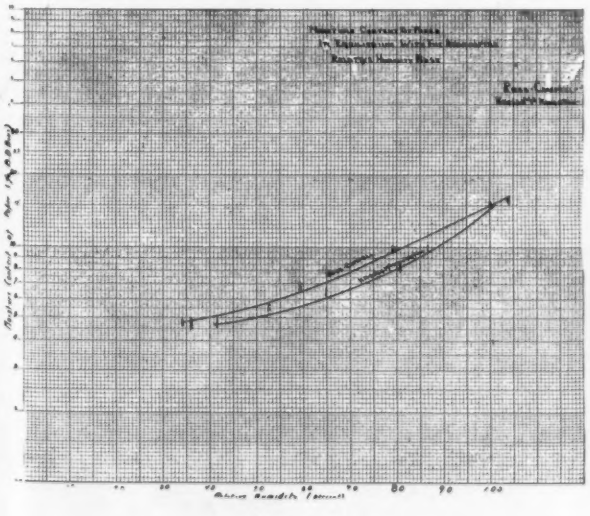

FIG. 1

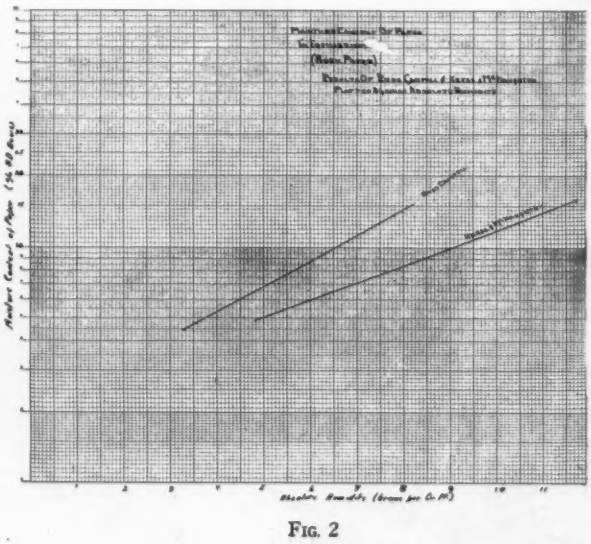

FIG. 2

Campbell and Pidgeon[12] investigated the problem using a very sensitive form of apparatus which included a thermostatically controlled bath, maintained to within 0.02 deg. C. of a standard temperature. They concluded that the moisture content of the paper was proportional to the relative humidity. This work has also been confirmed by Seborg and Stamm.[13]

Davis[14] studied the effect of changes in temperature and humidity on paper and concluded that the moisture varied with the absolute humidity. He found that if the relative humidity was kept constant, changes in temperature changed the moisture content.

Shotwell,[15] in his previous work on humidity conditions in the machine room and their effect on the moisture content of the paper made, concluded that the moisture content was proportional to the absolute humidity.

The authors, on commencing their study of the subject, first considered the existing data and repeated the work on the basis of absolute humidity instead of relative humidity using semi-logarithmic paper for the plots. In general, they found that for temperatures between 60 and 110 deg. F. the moisture was proportional to the absolute humidity, and if the curves were plotted with the logarithm (base 10) of the moisture content as the ordinate and the absolute humidity in grains of water per cubic foot as the abscissa, that the curve is a straight line until a humidity of between 12 and 15 grains per cubic foot is reached when the curve flattens out and tends to become parallel to the base. It was found that, for the different papers tested at moisture content corresponding to the flattening out of the curve, the paper showed signs of wetting. This meant that for each paper there was an actual saturation point above which moisture would not be "sorpt." If more moisture than the saturation content is taken up, it is taken up as a surface film and the surface is wetted.

Several methods were then used to confirm this conclusion experimentally. One was a modification of the Davis method using a strip of paper about one inch by eleven inches (2 g.) suspended

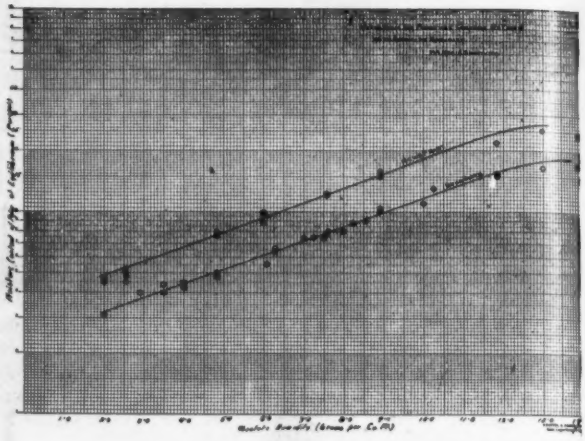

Fig. 4

by means of a fine wire from an analytical balance in an atmosphere of controlled temperature and humidity. The change in moisture content was observed until equilibrium was reached. Other samples taken at the same time had their moisture content determined in the ordinary manner so that the total moisture content at the equilibrium point was easily calculated. The moisture content of samples of paper kept in closed jars above aqueous solutions of definite vapor pressures and hence at definite relative humidities was also determined. These samples were left for two weeks at various controlled temperatures.

Finally, using the modified Davis apparatus, samples were suspended in an atmosphere of constant absolute humidity and the temperature varied. The results obtained showed:

(1) That between 60 and 110 deg. F. for a given absolute

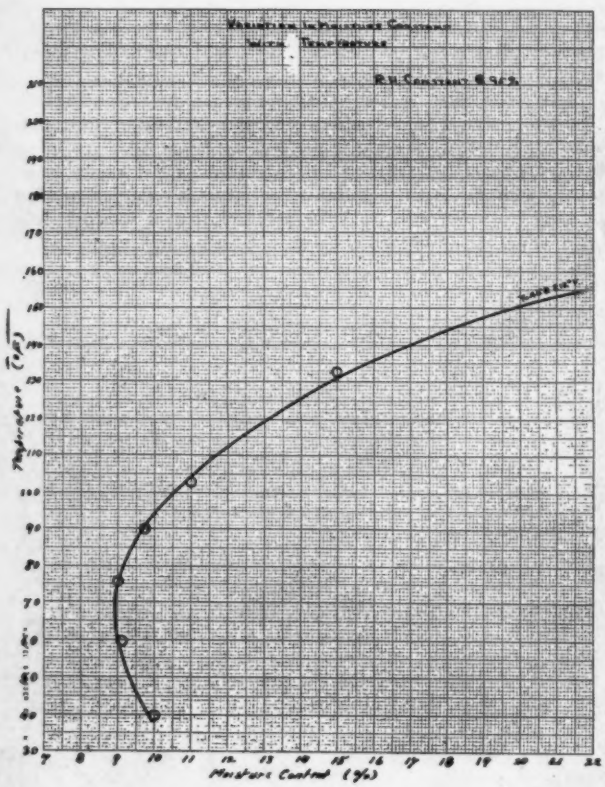

Fig. 5

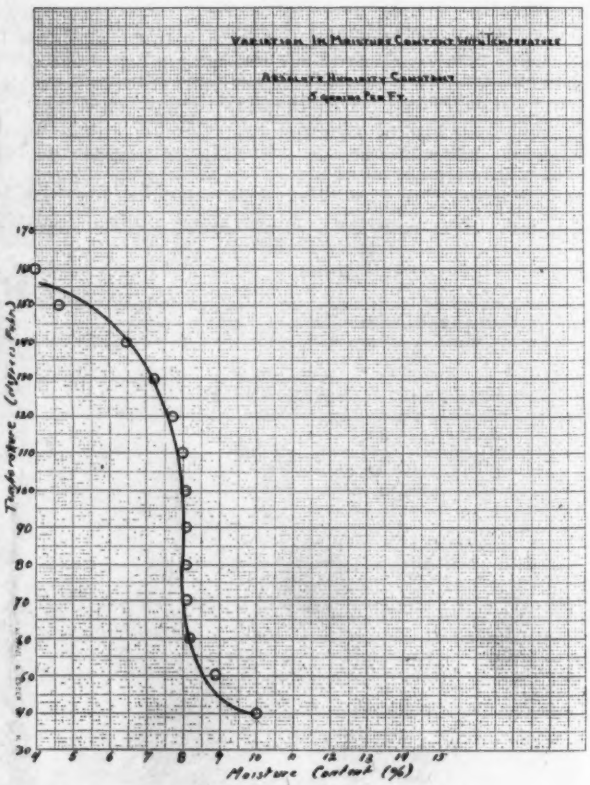

Fig. 6

humidity the paper did not change in moisture content, and that the moisture content was proportional to the absolute humidity.

(2) That above 110 deg. F. and below 60 deg. F. the moisture content changed with changes in temperature.

(3) If relative humidity was kept constant and the temperature changed the following effects were noted:

a. below 60 deg. F. a decrease in temperature increased the moisture content;

b. between 60 and 110 deg. F. an increase in temperature increased the moisture content;

c. above 110 deg. F. an increase in temperature increased the moisture content.

These conclusions were drawn from the data contained in the accompanying tables and in the curves in Figs. 3, 4, 5 and 6.

The modified Davis apparatus (Fig. 7) used by the authors consisted of a pyrex tube T, 1.5 inches in diameter and 36 inches long, surrounded by a water bath made of a second pyrex tube 4 inches in diameter and 30 inches long. The two were concentric and kept in place by means of rubber stoppers. The water bath was kept at constant temperature by means of a stream of water flowing from a thermostat with constant head. The paper sample was suspended in the inner tube by means of a fine wire passing up, through a small tube, at the top, to an analytical balance and was kept taut by means of a 10-gram weight suspended from the bottom of the sample.

Conditioned air was forced through the apparatus by means of a low pressure blower. The air was first conditioned in a small air humidifier supplied by the J. O. Ross Engineering Corporation, and, after passing through the blower, was further conditioned by passing through a series of three specially designed gas wash bottles containing solutions giving air of a desired relative humidity. These wash bottles were contained in a thermostat and the air, after leaving them, first passed through a spray trap and then through a coiled tube contained in a second thermostat from which it went to the reaction tube.

The authors have also replotted the results of the other workers on the absolute humidity basis and in practically all cases have obtained curves in harmony with their own experimental results. In some cases, such as those by Jarrell and by Kress and McNaughton, the lines do not coincide but in both cases straight lines are obtained. The difference is probably due to the difference in the furnish of the papers tested.

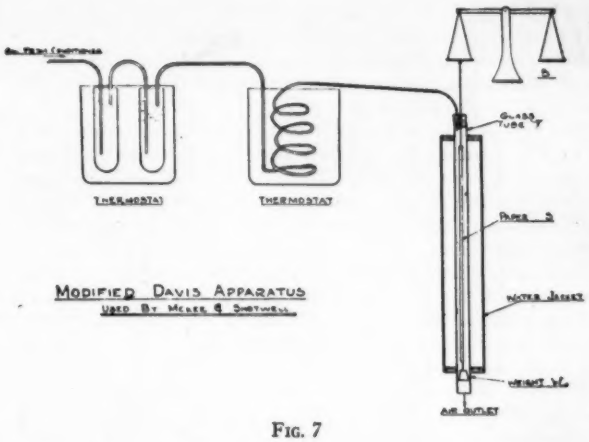

FIG. 7

The authors have found:

(1) That the moisture content of paper in equilibrium with the surrounding atmosphere varies with the absolute humidity (grains of water per cubic foot of air) for temperatures between 60 and 110 deg. F. And that even if the temperature is kept constant the relation of the moisture content to absolute humidity is closer than the relation of moisture content to relative humidity.

(2) That below 60 deg. F and above 110 deg. F. variations in temperature affect the relation of the moisture content to the absolute humidity.

(3) That if the relative humidity is kept constant, changes in temperature will affect the moisture content throughout the whole range from 40 to 212 deg F.

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The Rate of Moisture Regain In Paper*

By R. H. McKee[1] and J. S. G. Shotwell[2]

The fact that paper will change its moisture content very rapidly while being weighed in air has been mentioned by many writers on paper testing but practically no work has been published on the rate of this reaction, and on the effect that this rate will have on such problems as the buckling and curling of paper during storage and on many of the printing problems. The present authors have studied the rate of this reaction carefully and find that while for a given condition the rate of moisture regain will vary with the paper used, the trend of the reaction is similar for all paper. The rate of moisture change varies with the difference between the moisture actually present and that which would be present if the paper and the atmosphere were in equilibrium, and may reach as high a rate as one and three-quarters per cent per second.

Klemm[3] published the first paper dealing with this subject. In it he shows his results in several curves and concludes that while the initial rate of moisture change is rapid, the equilibrium is reached in a few hours, and also that practically all papers have the same rate of moisture pick up.

H. S. Davis[4] and R. C. Griffin,[5] studying the effect of changes in atmospheric humidity on the stretch of the paper used for lithographic work, indirectly measured the rate of change of moisture content. They measured the rate of change of stretch with changes in humidity and obtained the curves shown in Fig. 1. From the work of Houston, Carson and Kirkwood,[6] we can obtain the approximate figure for the rate of moisture regain. The result given shows in Figs. 1 and 2 that while the rate of moisture change is very rapid for the first few minutes, it then falls off rapidly and a condition of approximate equilibrium is reached in about two hours. By using a combination of the methods of these two sets of workers, we could determine the rate of moisture pick up for any fibrous material, but we should have two sets of experimental results for each determination and hence two sources of errors tending to be additive.

Shotwell[7] then studied the problem from the manufacturing point of view. He studied the rate of regain on newsprint only. The work was carried out on a high speed machine, and it was found that the rate of moisture pick up varied with the differ-

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 15-18, 1932.
Contribution of the Research and Development Division.
[1] Member TAPPI, professor of chemical engineering, Columbia University.
[2] Student, Columbia University, New York, N. Y.

ence between the moisture actually present and that which should be present at equilibrium between the paper and the atmosphere. However, these conclusions were based only on the rough figures obtainable using a high speed news machine as the apparatus. The results are shown in Fig. 4.

The present authors have studied the whole problem carefully, using a modification of the Davis apparatus, in which the sample is suspended from an analytical balance by means of a fine wire in an atmosphere of controlled temperature and humidity. By this means they were able to measure the gain or loss in weight of the sample directly and hence measured directly the change in moisture content, and by taking readings at short intervals of time to measure the rate of change of moisture for any given set of conditions.

They were thus able to study the rate of moisture change under varying atmospheric conditions, the time taken to reach equilibrium, the moisture content at equilibrium, and the effect of temperature on this last factor all on one sample. They found that: (1) the rate of moisture change varied, for all papers, with the difference between the moisture content actually present and that which would be present if the paper and atmosphere were in equilibrium. (2) The stock used and the presence of sizing or loading material affects the rate of the regain, hence different papers have different rates of regain, but in all cases the resulting curves are similar in general form as shown in Fig. 5.

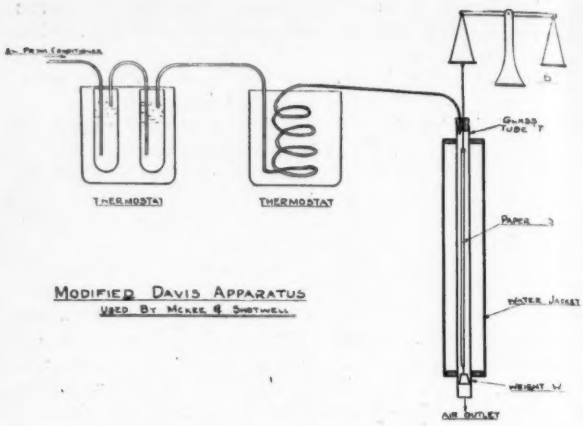
Seven Per Cent Moisture Content

These results, combined with those obtained for the moisture at equilibrium and with those of Davis[4] and Houston, Carson and Kirkwood,[5] show how much of the troubles in high grade printing due to buckling during storage and also the changes in size during printing may be greatly minimized by using a moisture content of about seven per cent. This moisture content is the one at which the paper changes least in size and is approximately in equilibrium with most storage conditions found. If the condition is such that the paper would dry out, it should be borne in mind that paper dries out approximately half as fast as it will regain moisture, for corresponding atmospheric conditions.

The difference in rate between regain and loss of moisture, and also the difference in moisture present and that at equilibrium, will help to explain the seeming discrepancies in the equilibrium content of paper at a given humidity condition depending on whether the equilibrium is approached from a lower or higher moisture content to start with.

Experimental Work

The apparatus used is shown in Fig. 3 and consists of a water jacketed pyrex tube, T. This tube was 36 inches long and 1.5 inches inside diameter. Conditioned air was passed through it from the air conditioner, C. The sample S was suspended



MODIFIED DAVIS APPARATUS
USED BY MESSRS. S SHOTWELL

FIG. 3

by means of the weight W (about ten grams) which was fastened to the lower end.

The air conditioner used consisted of three units through which the air passed: first, a spray type humidifier, next a pump then a bank of special wash bottles and a spray trap in a thermostat, and finally a long coil of light copper tubing in a thermostat. The wash bottles were filled with various solutions according to the humidity desired.

All the weighings were made to milligrams and the tests for each condition were run until three sets of readings, that checked to less than one-tenth per cent were obtained. Due to the time necessary to make the weighings, the most rapid readings that could be obtained were one every ten seconds. The results so obtained were then plotted on a large scale, and the curve extrapolated back to the origin. From this curve the gain or loss in moisture for the first, second, third, etc., seconds was obtained, and thus the rate of moisture pick up was found.

The whole procedure of the test consisted in cutting the samples of paper into strips of two grams each (about one inch by eleven inches and decreased through the center) and hanging these strips in the air. When a run was started five or six of the adjoining strips were taken and weighed in closed weighing bottles to the nearest tenth of a milligram. Two of these were then dried at 105. deg C. in an oven through which a current of dried air was passing. The rest of the samples were then run in the apparatus described above as follows: after being suspended from the balance, air of such humidity and temperature as to be in equilibrium with the paper, was passed through the tube from top to bottom and the whole counterbalanced. Air of this desired temperature

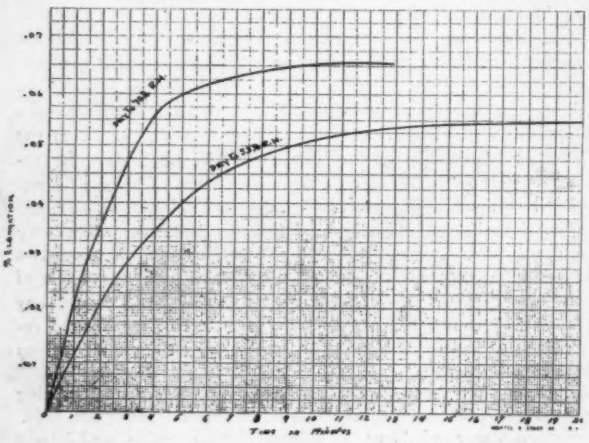


FIG. 1

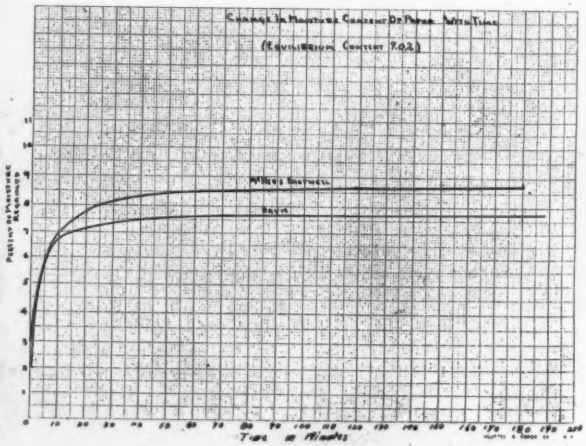


FIG. 2

TABLE I
RATE OF MOISTURE REGAIN

Kind of Paper	Difference in moisture present from equilibrium H_2O Per cent	Rate of moisture regain in per cent per second			
					Average
News print paper	1.0	.02	.02	.00	.01
" " "	2.1	.04	.05	.05	.05
" " "	2.5	.08	.10	.07	.08
" " "	2.9	.20	.21	.18	.20
" " "	3.5	.48	.45	.52	.48
" " "	4.4	.91	.89	.86	.89
" " "	6.0	1.25	1.30	1.25	1.27
" " "	7.1	1.41	1.40	1.43	1.41
" " "	10.0	1.50	1.53	1.55	1.53
Antique laid paper	1.0	.00	.00	.00	.00
" " "	3.5	.00	.00	.00	.00
" " "	5.0	.06	.05	.08	.06
" " "		.09	.13	.09	.10
" " "	5.5	.14	.10	.12	.12
" " "		.18	.20	.24	.21
" " "	6.0	.22	.24	.26	.24
" " "	6.6	.45	.50	.47	.46
" " "	7.0	.80	...	...	.80
" " "	8.1	.90	.88	...	.89
" " "	11.0	1.46	1.42	1.48	1.46
Double coated	4.0	.00	.00	.00	.00
" "	7.9	.02	.02	.08	.04
" "	9.0	.02	.02	.06	.03
" "	10.8	.10	.12	.13	.12
" "	12.0	.40	.35	.43	.40
" "	13.8	.70	...	...	.70
" "	15.0	1.20	...	...	1.20
" "	17.0	1.60	1.70	1.70	1.66
" "	19.0	1.70	1.72	1.74	1.72

TABLE II

Kind of Paper	Time of contact	Moisture in sheet	Oz. wt. of roll	Gain in moisture Oz.	Per cent actual	Per cent expected (from Fig. 5)
Double coated	1.3 sec.	7.5	128	1	0.6	0.8
" "	1.3 sec.	7.5	120	1	0.8	0.8
" "	1.0 sec.	7.5	159	1	0.6	0.7
" "	1.3 sec.	5.5	86	3	1.8	1.8
Hanging paper	1.0 sec.	7.5	265	3	1.1	1.2
" "	1.0 sec.	7.5	138	2	1.2	1.2
" "	1.2 sec.	7.5	197	3	1.4	1.4
News print	1.3 sec.	6.0	190	4	2.1	2.0
" "	1.3 sec.	6.0	180	2	1.5	2.0
" "	1.3 sec.	7.7	191	2	1.2	1.3

and humidity was then blown through the tube at the same rate as previously and the changes in weight showing a gain or loss were recorded. The rate of moisture pick-up was then obtained from these results by the method described above.

Some of the samples were kept in the apparatus until no further change in weight was noted during a three-hour interval. From these results it was found that after about two hours there was practically no change in the moisture content. In fact, for all purposes of practical importance equilibrium had been attained. Although this result is close enough for most practical previously purposes, it is not the true equilibrium, but we found that this was attained in twenty-four hours, or at least by the end of twenty-four hours the change in weight was less than one-tenth of a milligram on a two-gram sample.

The results so obtained were checked by using a continuous web

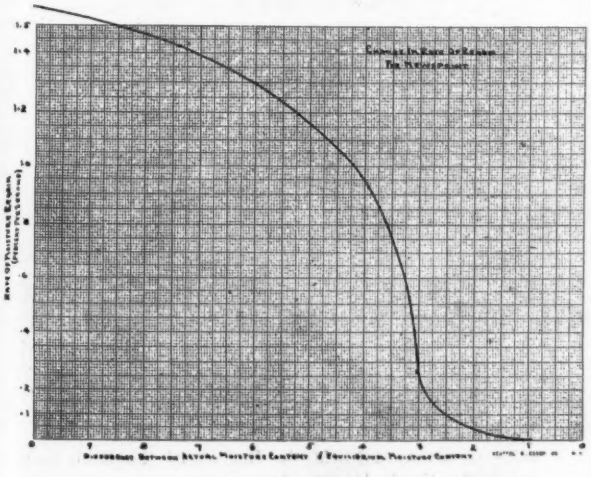


FIG. 4

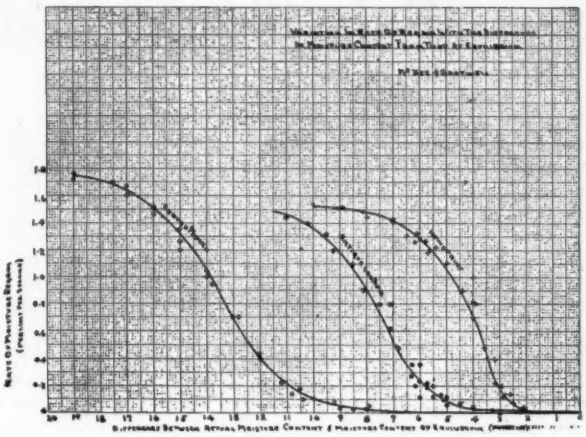


FIG. 5

of paper which was rolled from one reel to another and exposed to conditioned air for varying lengths of time. This method lent itself to a double check. The rolls were weighed before and after conditioning and the gain or loss in weight was the change in moisture content of the paper. Samples taken from the rolls and dried in the usual way gave a second determination of the moisture content. The tests made by the use of strips and the analytical balance gave figures that agreed with those obtained by the use of full rolls of paper. The curves shown in Fig. 5 and and the following tables give the results obtained.

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Permanent Record Papers

A group of commercial permanent record papers recently tested by the Bureau of Standards gave evidence that paper manufacturers are applying the results of research on permanence qualities. The nine papers tested were of bond type and were made from rag fibers by five different manufacturers. The papers far exceeded the average quality previously found in such papers by the Bureau.

The papers were exceedingly strong, the following endurance ranging from 2300 to 11,000, and the strength was stable, the retention of folding endurance under the heat test (exposure for 72 hours to 100 deg. C) ranging from 75 to 100 per cent. This excellent stability is attributed to the high cellulosic purity and the low contents of rosin and acid found in the papers, all of which are evidence of careful control of the paper-making operations.

The purity of the cellulose is shown by the high content of alpha cellulose, 93 to 98 per cent, and the low copper number, 0.33 to 0.83. When subjected to the heat test, the alpha cellulose did not decrease at all in four of the papers, these same papers did not gain in copper number while for all the papers the maximum loss in alpha cellulose was 1.7, and the maximum increase in copper number was 0.45. The rosin content was not more than 0.2 per cent in four of the papers, and the most found was 1.8 per cent. Two of the papers contained no acid and the maximum acidity was 0.05 per cent. The average weight of the paper was 68 pounds (per 500 sheets, 25 x 40 inches), and they were all surface sized with animal glue.

Papers such as these, if stored under favorable conditions, should endure indefinitely.

Pulp Testing Committee Report*

It is with pleasure that the pulp testing committee is now in a position to announce that its seven point program as described at the annual meeting on February 19, 1930, has been completed with the exception of Part IV which involved "Preparation of sheets from both pebble mill hydrated and disintegrated fiber after two or more time intervals." This phase of our three system plan of pulp strength testing has been studied during the past year by one of our members, F. C. Peterson of the faculty of the New York State College of Forestry at Syracuse, N. Y., and some of his associates.

At the Fall meeting in Kalamazoo a progress report was presented by Peterson, Jeffry and Maughan entitled, "Comparison between flint pebbles and porcelain balls as a means of hydrating in the pebble-mill test" and at the present convention we are favored by Peterson and Makara with another contribution, "Pulp consistency variables in the pebble-mill test."

It is hoped that by this time next year Mr. Peterson will have completed his systematic experimental study of the more important variables attached to the 1916 TAPPI standard pebble mill pulp strength testing procedure which was recommended by Robert B. Wolf and his committee on sulphite pulp. We shall be looking to Mr. Peterson during the coming year for a detailed improved pebble mill method to be acted upon by the committee as a possible "up to date" tentative means of specially bruising or hydrating cellulose fiber as a step in the making of test sheets.

During the past year a formal ballot has been taken through the Secretary's office to determine the fate of the 1928 tentative standard method of preparing test sheets as advocated early in that year by Mr. Genberg and his committee on sulphite pulp. After considering the objections and adverse comments of various kinds that were returned with many of the ballots. (See PAPER TRADE JOUR. *93*, No. 26, 31-36—Dec. 24, 1931, and Pulp and Paper Mag. of Canada for Dec. 31, 1931), it was decided by our executive committee to set this method aside.

Since then the British pulp testing specifications as arranged by James d'A. Clark has been approved by our committee of thirteen with but four dissenting votes. It therefore supplants the 1928 tentative initial strength test and goes two steps farther in providing the details of making test sheets from pulp that has been, as well as that which has not been hydrated or bruised by pebble mill, small beater or other kind of fiber processing apparatus. In addition it departs from the standard paper testing methods of expressing results by resorting to the exclusive use of metric units. This is a commendable step in meeting requirements for a world wide standard pulp testing procedure. It is a feature, however, which will probably meet with general disapproval in this country until the corresponding standard paper testing methods are revised officially so as to give preference for the metric units of measure in place of the present illogical and unwieldy English units. This step in turn is one which will undoubtedly be avoided until there is a general or governmental shift from the latter to the former units of weights and measures.

The complete set of equipment necessary for carrying out the British plan of forming pulp test sheets is now obtainable from a firm in Lancaster, Ohio. The aggregate cost of this equipment is at present over seven hundred dollars, including disintegrator, sheet machine, pump and press. With most paper and other companies exercising the utmost economy at the present time it is doubtful whether many of these sets will be purchased during the coming year. Until this equipment and the method have been given a thorough trial by half a dozen different laboratories in this country it would seem unwise for our association to act upon them by ballot in the usual way as normally done after the minimum tentative period of one year. A tentative trial period of even three or four years in this case may prove advantageous for all concerned.

During this time further investigations in this country or elsewhere may lead to worth while improvements which can be acted upon later by the committee as amendments to the original specifications. A highly desirable modification is one which would shorten the overall time requirement with no loss or but slight sacrifice as to accuracy or reproducibility of results. A proposal of this nature has been recently made by Cotral, Prior and Baker of England.

One of our committee members, Mr. Laymon, presented a paper at the convention last February on the subject, "American and British pulp testing methods." His chief criticism of the standard British method was that it is comparatively slow. In spite of this limitation, however, he recommended that TAPPI should give serious consideration to the idea of adopting the English method. Our committee has been largely influenced by Laymon's report and advice in deciding to approve of the procedure in question as arranged by Clark.

A year ago, the Moore and Willets recommended modification of the tentative standard beater specifications for processing pulp prior to the making of test sheets was approved by the required two-thirds of our pulp testing members. The time is therefore now at hand to submit the beater treatment method with approved amendments to a formal vote of the Association members.

Moore and Willets at the convention last February read an interesting paper, "Progress report on the evaluation of unbleached pulps" which gives in tabular and graphical form the physical test data for five samples of sulphite and two of kraft pulp as observed in beating for various time intervals from zero to one hundred and fifty minutes at a consistency of 1.75 per cent.

Our future committee plans in regard to the establishment of additional tentative standard *physical tests for pulp* aim at the following specific items as stated a year ago (PAPER TRADE JOUR. *92*, No. 22, 41-42—May 28, 1932):

A. Color of pulp (by rotating disc method, by Hess-Ives type of instrument or better by some photoelectric cell apparatus)

B. Dirt content of pulp

C. Freeness value of pulp (by means of Canadian standard freeness tester, Schopper-Riegler freeness tester, Williams precision tester, rate of flow by method developed by the U. S. Forest Products Laboratory or by the new improved Green freeness or slowness tester)

D. Screen analysis as by the Forest Products Laboratory method

E. Sedimentation test

F. Strength qualities of pulp by static bending test of the Forest Products Laboratory

G. Any other physical test or tests for pulp that may have been overlooked in the above outline or new ones of a new and novel nature that may be developed and described in future years.

Chemical Tests

During the past year our committee has added the following to its set of tentative standard chemical tests for pulp by favorable action of two-thirds or more of the committee members:

4. "Determination of methoxy content of sawdust and pulp" as arranged by P. S. Billington of the U. S. Forest Products Laboratory at Madison, Wis.
5. "Determination of cuprammonium hydroxide viscosity of pulp" as arranged by M. D. Reuben of the York Haven Paper Co., York Haven, Pa.

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 15-18, 1932.

6. "Cold and hot water solubility of wood and pulp" as arranged by P. S. Billington.

7. "Determination of moisture in pulp lap, wood chips and sawdust by xylene treatment" as arranged by M. A. Youtz and B. E. Lauer, of Northern Paper Mills, Green Bay, Wis.

The non-fibrous materials testing committee has selected for us as a tentative official standard method *"Determination of pitch in woodpulp"* PAPER TRADE JOUR. *93*, No. *27*, 23-24—(Dec. 31, 1931).

Methods 1 and 2, "Isolation of cellulose by chlorination method" and "Chlorine consumption of pulp" PAPER TRADE JOUR. *91*, No. 11, 81-82—(Sept. 11, 1930), having served the required probationary period of one year should now be formally voted upon by the association membership.

Method 3, "Alpha cellulose in pulp" as arranged by W. R. Willets (Tech. Assoc. Papers *14*, 121—May, 1931) is being subjected to a minor change at his suggestion and consequently its probationary period will be extended for another year.

The following chemical tests still remain for our committee to investigate and act upon before being placed in the tentative standard classification:

8. Acid hydrolysis
9. Alcohol-benzene solubility
10. Alkali solubility in 1 per cent NaOH
11. Alkali solubility in 1 per cent NaOH, corrected for water solubility
12. Ash
13. *Beta* and *gamma* celluloses
14. Bleach consumption (based on 35 per cent available chlorine content in calcium hypochlorite)
15. Copper number
16. Ether solubility
17. Lignin
18. Pentosan and methyl-pentosans
19. Permanganate number
20. Potassium hydroxide (10 per cent) solubility
21. Methods or tests unintentionally omitted from the above list or new ones to be described at later dates

In closing the chairman thanks sincerely each of the following members of the pulp testing committee for the past one to three years of faithful, courteous and enthusiastic cooperation either for original contributions to pulp testing programs or for their letters, consideration of new methods and for helpful and constructive comments:

H. K. Benson	N. L. Nourse
P. S. Billington	F. C. Peterson
H. C. Bradford	M. D. Reuben
G. P. Genberg	H. A. Rothchild
H. W. Laymon	W. R. Willets
W. F. Moore	M. A. Youtz

The chairman is ever so grateful to Mr. H. J. Berger, Editor of PAPER TRADE JOURNAL, for his generosity in providing our committee with reprints of many pulp testing committee contributions which in turn are available to interested individuals for the asking thereof.

DONALD E. CABLE, Chairman.

Heat and Power Committee Report*

The heat and power Committee, as now organized, consists of four sub-committees specializing in the several types of work indicated by the titles of the committees, which follow, together with the names of the various sub-committee chairman.

Production and transmission of Heat and Power, A. G. Darling, chairman

Heat utilization in chemical processes, R. S. Hatch, chairman

Heat utilization in pulp drying and in making paper and paper board, A. E. Montgomery, chairman

Power requirements, Reginald Trautschold, chairman

There have been a number of changes in the personnel of the committees since last year, but good men have been secured throughout. However, it is the desire of those now on the committees that the personnel be augmented by additional members who are specialists in the several fields of work and we will welcome suggestions to that effect.

One of the functions of the heat and power committee should be to serve as a general exchange in answering questions regarding specific problems. This year scarcely any opportunities have been presented for service of that kind. It is believed that good results would be had from a more general use of the committee personnel in work of this kind, resulting in an interchange of experience data on practical and theoretical operating problems.

Three broad and general investigations have been started this year by the sub-committee chairmen responsible for the activities represented, as follows:—

1. A general form or guide for the collection of data relative to power plant operation efficiencies and the costs of steam and electric power as a by-product of process steam or from condensing operation. (Mr. Darling)
2. A comprehensive study of data on the rate of drying on paper and board machines for various kinds of paper and boards. (Mr. Montgomery)
3. The correlation of data regarding power requirements for auxiliary pulp and paper mill equipment. (Mr. Trautschold)

The subjects of these investigations are broad in nature and probably progress will be slow. However, a good start has been made, particularly in Mr. Montgomery's committee, as evidenced by a partial release of data in Mr. Stamm's paper on "Evaluation of Paperboard Drier Performance."

Mr. Darling has made available for use by the committee, certain standard forms and instructions in use by the General Electric Company in their power plants. These forms are going the rounds of the four sub-committees in order to get reactions looking to the formation of a tentative form applicable to paper mill problems.

When a satisfactory short form is established for assembling preliminary data, copies will be sent to a few representative mills whose personnel can be relied upon to use the forms intelligently. With this work as a background, it is then hoped eventually to secure forms from which cost data can be assembled, compiled and compared for general use.

By these means we hope eventually to secure comparative operating data which will show steam and power costs for several operating pressures and conditions to serve as a guide to the Paper Industry in fixing conditions for new power plants and for improvements and extensions.

Progress reports have been prepared by the chairman of three of the sub-committees and are appended.

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., February 15-18, 1932.

No report on new developments will be presented this year by the heat and power committee as a whole. There have been notable advancements in the art of generating, transmitting, and utilizing of heat and power, but these are to a large extent along the lines of refinement and improvement of already well established principles and types of apparatus. Much information regarding such forward steps can be had by reference to data published by the A.S.M.E., the N.E.L.A., the several power plant magazines and publications of the major concerns engaged in building power plant equipment. We hope next year to submit a report on such items as are of particular interest to the pulp and paper industry.

M. H. TEAZE, Chairman,
Heat and Power Committee.

REPORT OF SUB-COMMITTEE ON PRODUCTION AND TRANSMISSION OF HEAT AND POWER

In keeping with the times, your committee has devoted its attention to practical methods of effecting economies which will tend to give more output per dollar invested. One of the bugbears which is ever present in the modern electrical systems has again been given consideration. The elusive reactive current in alternating systems has been restudied with a clear understanding and comprehensive solutions have been offered for its resulting problems.

To operate a system is to understand it. The results of years of research and practical experience have been summarized and made available in the paper dealing with insulations. It is gauged for the electrician and for the engineer it contains basic information as well.

Much time has been spent in the past on the treatment of ash. The major problems have been solved but are subject to further improvements. A consolidation of position can be effected through constant detail improvements. Your committee presents with pleasure a comprehensive discussion of fly ash for your consideration.

As the market becomes saturated, new outlets must be found. The public utilities have successfully, and presumably profitably, supplied the power market of those plants whose requirements have been satisfied by electric power in major proportions to other uses for energy. The past few years show increasing interest being expressed on the part of the consumer and the utility in joint production of heat and electric energies. Examples vary from both quantities being supplied entirely by the consumer to the opposite extreme of both being supplied entirely by the utility. When a combination of basic facts are known to contain elements of economy solutions which are mutually agreeable to all parties concerned will inevitably be found. The subject is being given a searching study from many angles. It is recognized that heat absorbed in the condenser is a dead loss and that electricity produced from non-condensed steam, required for other purposes, is, by the same sign, a cheap by-product. A reservoir of some sort is required in order that speed may be held constant while steam flow varies.

There are certain fundamental business methods in the joint enterprises which differ widely. The utility, whether it buys or sells power, does so for profit. It is content to carry the necessary investment over an extended time as the diversity of its market is such that local or general depressions have less effect on its income than they have on a single industrial consumer. The industrialist considers his power and process steam as a small but very necessary element of his operating and cost structures. Lack of concern as to continuity of service is a very desirable factor. If he is to sell surplus power or buy his deficiency, contingent responsibilities should be minimized and sufficient profit be obtained to offset the added complications. A quick return on his investment is necessary in order that he may ride through times when his product is less marketable, as well as permit him to write off his investment before obsolescence takes place. Large resources for power are available at low cost. Fortunately, they are found in small sizes and in a diversity of industries. Further investigation is recommended for this broad subject.

A start has been made on a unified power-use and cost-accounting system. A tentative schedule has been circulated among various committees. Allied organizations are working along the same lines. From these efforts, it is hoped that better understanding of plant operating characteristics can be obtained, as well as correct methods for charging departments with power and steam.

A. G. DARLING, Chairman.

REPORT OF SUB-COMMITTEE ON HEAT UTILIZATION IN PULP DRYING AND IN MAKING PAPER AND PAPER BOARD

The activity of this sub-committee during the past year has been confined to the accumulation of data on the rate of drying on paper and board machines for various kinds of paper, and a study of the effect of the factors involved. A sufficient accumulation of data on board machines was made to enable the formation of certain conclusions which are presented in a separate report at this time.

During the coming year we propose to further pursue this same work, probably considering news print first, and such other classes of paper as time will permit and the accumulation of sufficient data warrant.

We expect to be able to state definitely what rate of evaporation per unit of drier surface can be considered as good, fair, or poor practice with any grade of paper or board; further to state in definite ratios how the rate is affected by such factors as steam pressure, freeness of stock, degree of sizing, weight of sheet, condition of air surrounding driers, percentage bone dry of sheet entering and leaving driers, and number of driers.

A. E. MONTGOMERY, Chairman.

REPORT OF SUB-COMMITTEE ON POWER REQUIREMENTS

The sub-committee on power requirements has instigated an investigation of the power requirements for auxiliary pulp and paper mill equipment, with the view of providing a dependable record of performance data for guidance in furnishing power capacity, gauging effectiveness of unit operations and as a measure of equipment obsolescence. Some pertinent statistics have been collected and are being analyzed, the data compiled so far as feasible, so as to show power requirements under average, forced and good operating conditions, i.e., average, maximum and minimum power requirements for the more important auxiliary equipment of various sizes, types and capacities employed in pulp and paper mill operation.

A standardized form for recording the pertinent statistics is being drafted for the guidance of the committeemen in assembling and correlating the data and it is the intention of the committee to solicit the active co-operation of the operating departments of all mills in a position to supply interesting performance records. To facilitate the securing of data, the source of information is not to be divulged in the committee reports, to be released from time to time, for the sole requirement is that the information given out be based upon actual operating performance in approved pulp and paper mill practice.

By a suitable classification of the data in respect to the character of the mill and to the mill product, as well as in respect to type and capacity of equipment, the value of the investigation to the individual mill can be greatly increased. It is the hope of the committee that all possible sources of information may be cultivated and that the response will enable a practical compilation of value to be presented to the entire industry at an early date.

REGINALD TRAUTSCHOLD, Chairman.

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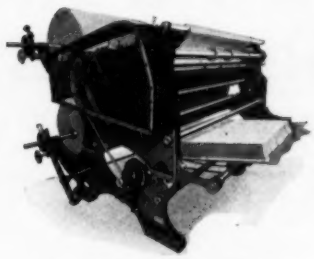

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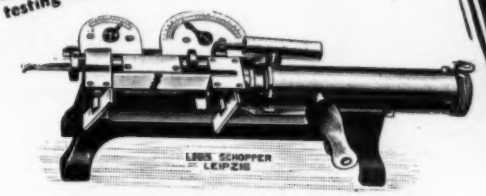

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Lunham & Reeve, Gripsholm, Gothenburg, 266 rolls; ——, Stavangerfjord, Oslo, 612 rolls; Perkins Goodwin & Co., Stuttgart, Bremen, 39 rolls; Jay Madden Corp., Stuttgart, Bremen, 196 rolls.

PRINTING PAPER

C. Steiner, Stuttgart, Bremen, 9 cs.; E. Dietzgen & Co., Rotterdam, Rotterdam, 18 cs.; Keuffel & Esser Co., Tofuku Maru, Hamburg, 17 rolls; Japan Paper Co., Mauretania, Southampton, 2 cs.

WRAPPING PAPER

C. F. Hubbs & Co., Gripsholm, Gothenburg, 21 bls.; E. H. Bailey & Co., Mauretania, Southampton, 2 cs.

COLORED PAPER

F. Murray Hill Co., Deutschland, Hamburg, 3 cs.

BRISTOL BOARDS

Bainbridge Kimpton & Haupt, Inc., Amer. Farmer, London, 2 cs.

PARCHMENT PAPER

International Accep. Bank, Stuttgart, Bremen, 9 cs.

FILTER MASSE

J. Manheimer, Europa, Bremen, 50 bls.

FILTER PAPER

J. Manheimer, Olympic, Southampton, 85 bls.; E. Fougera & Co., Olympic, Southampton, 57 cs.; H. Reeve Angel & Co. Inc., Olympic, Southampton, 5 cs.; H. Reeve Angel & Co. Inc., Amer. Farmer, London, 18 cs.; A. Giese & Son, Mauretania, Southampton, 52 bls.; C. Schleicher & Schull Co. Inc., Amer. Importer, Hamburg, 15 cs.

DRAWING PAPER

Devoe & Reynolds Co., Amer. Farmer, London, 3 cs.; Keuffel & Esser Co., Tofuku Maru, Hamburg, 13 cs., 23 rolls.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Scythia, Liverpool, 10 cs. (simplex); 10 cs. (duplex); C. W. Sellers, Deutschland, Hamburg, 4 cs.; L. A. Consmiller, Europa, Bremen, 7 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Minnewaska, Antwerp, 78 cs.; Phoenix Shipping Co., Amer. Importer, Hamburg, 47 cs.

BARYTA COATED PAPER

Globe Shipping Co., Columbus, Bremen, 44 cs.

METAL COATED PAPER

K. Pauli Co., Deutschland, Hamburg, 8 cs.; Globe Shipping Co., Europa, Bremen, 33 cs.; J. J. Share & Co., Europa, Bremen, 20 cs.

COATED PAPER

Huppel & McAvoy, Deutschland, Hamburg, 5 cs.

PHOTO PAPER

American Express Co., Deutschland, Hamburg, 8 cs.

TISSUE PAPER

Jay Madden Corp., Stuttgart, Bremen, 9 cs.; B. F. Drakenfeld & Co., Scythia, Liverpool, 1 cs.; M. Snedeker Corp., Amer. Farmer, London, 1 cs.

FANCY PAPER

Tamm & Co., Minnewaska, Antwerp, 2 cs.

WRITING PAPER

Independent F'd'g Co., Mauretania, Southampton, 6 cs.

ENVELOPES

Simfred Co. Inc., Deutschland, Hamburg, 3 cs.; J. Beckhard Co., Europa, Bremen, 5 cs.

WAFER PAPER

Ipex, Rotterdam, Rotterdam, 6 cs.

CARD BOARD

Gevaert Co. of America, Minnewaska, Antwerp, 5 cs.; G. M. Thurnauer, Minnewaska, Antwerp, 8 cs.

MISCELLANEOUS PAPER

Hensel Bruckman & Lorbacher, Stuttgart, Bremen, 4 cs.; Japan Paper Co., Rotterdam, Rotterdam, 2 cs.; W. Bersch, Deutschland, Hamburg, 2 cs.

RAGS, BAGGINGS, ETC.

V. Galaup, Pipestone Co., Havre, 44 bls. rags; 1st Nat'l Bank of Boston, Guido, Antwerp, 421 bls. flax waste; 95 bls. thread waste; Van Oppen & Co., Guido, Antwerp, 153 bls. bagging; E. J. Keller Co. Inc., Guido, ——, 66 bls. rags; Amderutra Transport Corp., Deutschland, Hamburg, 200 bls. rags; Banco Com'l Italiana Trust Co., Deutschland, Hamburg, 18 bls. rags; Bush Service Corp., West Arrow, Antwerp, 247 bls. bagging; Van Oppen & Co., Amer. Importer, Hamburg, 111 bls. bagging; ——, Amer. Importer, Hamburg, 28 bls. rags; Bank of N. Y. Trust Co., Caelleda, Londonderry, 87 bls. rags.

GLUE STOCK

——, Amer. Farmer, London, 444 bls.

(*Continued on page 44*)

QUALITY PULPS

"HAFSLUND BEAR"
Bleached Sulphite

"FORSHAGA"
Bleached Sulphite

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"BAMBLE"
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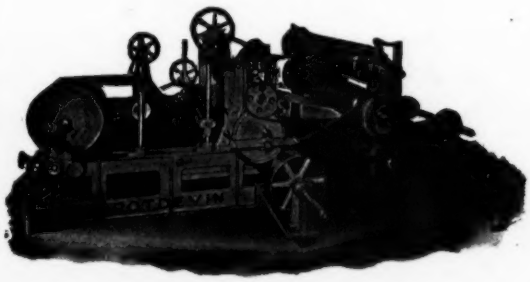

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DRAPER BROS. COMPANY
CANTON, MASS.
Woolen manufacturers since 1856

Imports of Paper and Paper Stock

(*Continued from page 42*)

OLD ROPE

——, Fred. VIII, Copenhagen, 40 coils, 27 bls.; W. Steck & Co., Guido, Hull, 79 coils; G. W. Millar & Co., Guido, Hull, 59 coils; Banco Com'l Italiana Trust Co., Guido, Hull, 121 coils; E. J. Keller Co. Inc., Amer. Farmer, ——, 91 coils; Banco Com'l Italiana Trust Co., Amer. Importer, Hamburg, 132 coils.

CHINA CLAY

L. A. Salomon & Bro., Scythia, Liverpool, 140 bags.

CASEIN

D. C. Andrews & Co., Deutschland, Hamburg, 60 bags.

WOOD PULP

Chemical National Bank, Stavangerfjord, Oslo, 150 bls. sulphite; E. M. Sergeant Co., Stavangerfjord, Oslo, 300 bls. chemical; J. Andersen & Co., Stavangerfjord, Oslo, 1542 bls. sulphite; Johaneson Wales & Sparre, Inc., Gripsholm, Gothenburg, 250 bls. sulphate; Perkins Goodwin & Co., Gripsholm, Gothenburg, 255 bls. sulphite; Atterbury Bros. Inc., Fred VIII, Oslo, 500 bls. mechanical, 101 tons; J. Andersen & Co., Topdalsfjord, Groaker, 2458 bls. sulphite; Price & Pierce, Ltd., Topdalsfjord, Greaker, 125 bls. sulphite; ——, Topdalsfjord, Drammen, 750 bls. chemical; Irving Trust Co. Inc., Topdalsfjord, Drammen, 250 bls. chemical; Gottesman & Co. Inc., Topdalsfjord, Drammen, 1250 bls. sulphate; A. P. W. Pulp & Power Co. (Albany), Seneroles, Sheet Harbor, 9034 bls. wood pulp; G. S. Kerr Co., Karmoy, Shippegan, N. B., 1700 cords wood pulp; Castle & Overton, Inc., Rotterdam, Rotterdam, 125 bls. wood pulp; Castle & Overton Inc., Deutschland, Hamburg, 1120 bls. wood pulp, 224 tons; Brown Bros. Harriman & Co., Tofuku Maru, Hamburg, 170 bls. wood pulp, 25 tons; E. J. Keller Co., Inc., Tofuku Maru, ——, 340 bls. wood pulp, 51 tons; Perkins Goodwin & Co., Amer. Importer, Hamburg, 300 bls. wood pulp, 60 tons.

WOOD FLOUR

B. L. Soberski, Stavangerfjord, Frederickstad, 150 bags; Corn Exchange Bank Trust Co., Stavangerfjord, Flekkefjord, 400 bags; B. L. Soberski, Topdalsfjord, Frederickstad, 1500 bags; The Burnet Co., Rotterdam, Rotterdam, 1000 bags.

WOOD PULP BOARDS

Lagerloef Trading Co., Deutschland, Hamburg, 83 bls., 11 tons.

PHILADELPHIA IMPORTS

Katzenstein & Keene, Inc., Pipestone Co., Dunkirk, 70 bls. rags; Castle & Overton, Inc., Quaker City, Bremen, 23 bls. rags; 1st National Bank, New York City, Bristol, 124 coils old rope; National City Bank, London Corporation, London, 97 coils old rope; ——, London Corporation, London, 171 coils old rope.

BALTIMORE IMPORTS

Congoleum Nairn Co., West Arrow, Antwerp, 629 bls. rags; Congoleum Nairn Co., McKeesport, Havre, 128 bls. rags; E. Butterworth & Co. Inc., McKeesport, Dunkirk, 145 coils old rope; Congoleum Nairn Co., Coelleda, Dublin, 151 bls. rags; Gottesman & Co. Inc., Mexicano, Norway, 1250 bls. wood pulp.

NORFOLK IMPORTS

Chase National Bank, West Arrow, Antwerp, 107 bls. bagging; Dichman Wright & Pugh Inc., West Arrow, Antwerp, 76 bls. bagging; E. Butterworth & Co. Inc., West Arrow, 208 bls. bagging; Dixie Jute Bagging Corp., West Arrow, Antwerp, 32 bls. bagging.

BOSTON IMPORTS

Draper & Co., Pipestone Co., Dunkirk, 19 bls. thread waste; ——, Pipestone Co., Havre, 155 bls. bagging; True & McClelland, Pipestone Co., Havre, 240 bls. rags; E. J. Keller Co. Inc., Pipestone Co., ——, 30 bls. bagging; G. F. Malcolm, Scythia, Liverpool, 19 cs. gauze tissue paper; Meredith Linen Mills, Guido, Antwerp, 79 bls. flax waste; Brown Bros. Harriman & Co., Guido, Antwerp, 59 bls. old rope; Spaulding Fibre Co., Guido, Antwerp, 500 bls. flax waste; Stone Forsythe Co., Guido, Antwerp, 40 bls. bagging; Castle & Overton Inc., Quaker City, Hamburg, 952 bls. wood pulp, 113 tons; M. C. Rosenfelt Co., Quaker City, Hamburg, 3 bls. filter paper; ——, Quaker City, 15 cs. filter paper.

PORTLAND IMPORTS

Gottesman & Co. Inc., Sparreholm, Sweden, 2100 bls. wood pulp.

Forest Fires Cause Anxiety in Quebec

MONTREAL, Que., May 23, 1932—The past week has been one of great anxiety in the industry because of forest fires in many districts east of the prairies, and particularly in the province of Quebec. So serious indeed did the situation become in this Province that the Provincial government early in the week decided to close forest areas over a large portion of the Province, refusing entry to anyone. However, at the time of writing the situation has so far improved that temporary permits are being granted, as before, to fishermen and campers. The fires were particularly bad in the Gatineau district north of the Ottawa river, the Abitibi district, and the Labelle district in the region north of St. Agathe. According to the Minister of Lands and Forests, a total of 125 fires have raged in Quebec forests since January, the most serious being in the Abitibi district near Rouyn. This is the center of a mining district where Communist riots recently took place, and incendiarism is suspected. No estimate has yet been made of the damage done.

Awards for Government Paper

WASHINGTON, D. C., June 1, 1932—The Mathers-Lamm Paper Company has been awarded the contract for furnishing the Government Printing Office with 6,900 sheets of 21 x 32 yellow gummed paper at $6.54 per ream bids for which were received on May 13.

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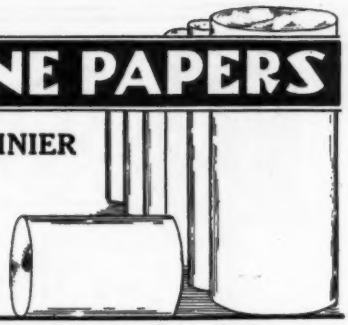
FOR CYLINDER AND FOURDRINIER MACHINES

Let us solve your FELT Problems.



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Satin Style felts for finish.
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Special Grades for Beater and Top Sizing

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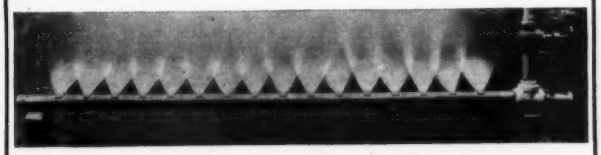
"WILL NOT RIDGE THE WIRES OR MAKE STREAKS"



FOR PAPER MACHINE WIRES, FELTS AND SCREENS

THE MOORE & WHITE COMPANY
Paper Mill Machinery Philadelphia, U. S. A.

New York Market Review

Office of the PAPER TRADE JOURNAL.
Wednesday, June 1, 1932.

Trading in the local paper market during the past week was only moderately active. While inquiries for summer specialties are numerous, little interest is being displayed in most of the standard grades of paper. Sales forces of the leading paper organizations continue to exert every effort to secure their share of business. Prices are holding up well, in most instances.

The position of the news print market is practically unchanged. Production is being maintained in sufficient volume to take care of current requirements. Shipments against contract are going forward with some semblance of regularity. Accumulations at the mills are not excessive. The price situation continues unsatisfactory.

Quietness reigns in the paper board market. Box board operations are keyed to consumption and the contract movement is fairly heavy. The fine paper market is exhibiting a fairly strong undertone. Some improvement is reported in the sulphite bond market. Tissues are moving at a normal pace. The coarse paper market is fairly steady.

Mechanical Pulp

The ground wood market is displaying soundness. With production of foreign and domestic mechanical pulp curtailed, the statistical position of the industry is fairly satisfactory. Contract shipments are moving in seasonal volume. Prices are holding up well and shading is infrequent.

Chemical Pulp

Steadiness continues to prevail in the chemical pulp market. The continuation of the pulp wood mill workers' strike in Sweden is an important factor in the present firm position of the industry. While demand for the various grades is quiet, prices are holding to schedule, without difficulty.

Old Rope and Bagging

Some improvement was noticed in the old rope market. Demand for domestic and imported old manila rope is moderately active. Small mixed rope is going forward in fair volume. Old rope prices are steady and unchanged. The bagging market is irregular. Although roofing bagging is fairly active, scrap and gunny are dull.

Rags

The domestic rag market continues listless. Paper mill demand for the various grades of cotton rags is restricted, with few exceptions. There is some seasonal request for roofing grades. Prices of domestic rags are strictly nominal. The imported rag market is decidedly quiet and is still affected by the fluctuations of foreign currencies.

Waste Paper

Although board mill demand for the lower grades of paper stock is comparatively light, offerings are not excessive and prices are generally holding to formerly quoted levels. The better grades of waste paper are fairly steady. Book stock is holding up well. Hard and soft white shavings are in moderate request, considering general conditions.

Twine

Most of the business transacted in the local twine market during the past week was along routine lines. Demand for the various grades is rather light at present and supplies are moving into consumption slowly. Prices are generally well maintained although there are reports of concessions on extra desirable orders.

I. P. REPORT REFLECTS DEPRESSION

(*Continued from page 11*)

tion, of about $400,000. Higher earnings of International Hydro-Electric System, occasioned largely by better water conditions, were more than offset by the decline in volume and prices in the business of International Paper Company and its subsidiaries. Volume of business is still receding.

"The cash position of the Company's subsidiaries is continuing to improve. New England Power Association has in contemplation financing to cover the balance of its bank debt and its maturities. The bank debt of International Paper Company and its subsidiaries can be funded only under improved conditions; but some reduction of this bank debt from operating receipts can be expected unless conditions average distinctly less favorable than they were during the first quarter. In the meantime, sinking fund payments are reducing the funded debt.

"The properties of the Company are proving their efficiency. Costs are being lowered. The products of the pulp and paper mills are being increasingly established in the good-will of their customers. The power subsidiaries are well equipped to render a high-grade service, are being operated economically, and enjoy the esteem of the public they serve.

"Through economies and savings in operation—chiefly in production costs—International Paper Company and its subsidiaries saved between $6,000,000 and $7,000,000 in 1931 over their 1930 basis of costs. The increase in efficiency which underlay this result is still being extended, and constantly lowered costs are being reached. An intensive effort to achieve further economies is under way.

"Under stabilized business conditions it seems, therefore, that the security holders of the Company can look forward with confidence to a steady improvement in its position and in its earnings."

Finnish Pulp Shipments Hold Up

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 25, 1932.—Wood pulp shipments from Finland are holding up well during the present year, but prices show no improvement and the outlook is uncertain according to a cablegram from Trade Commissioner Sommer at Helsingfors.

Arthur D. Little, Inc.

Chemists and Engineers to the Pulp and Paper Industry for over Forty Years

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Dietz Towel Interfolding Machines
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TOILET PAPER MACHINES
For making Toilet and Paper Towel Rolls
(With or without perforations)

AUTOMATIC TUBE MACHINES
For Making Wire-Stitched Toilet Tubes

Sanitary Crepe Towel Machines, Roll Tighteners, Slitting and Rewinding Machines, Drop Roll Slitting Machines, Photo Mount Beveling Machines, Rotary Card Cutting Machines, etc.
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and below Diamond St.
Phila., Penna., U. S. A.

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a sure cut
a shear cut

LANGSTON SLITTERS

For clean, square-edged, tightly wound rolls, Langston Slitters are unequaled. The Shear-Cut parts the paper cleanly—instead of *crushing* it. Ask for details.

SAMUEL M. LANGSTON CO.
Camden, New Jersey

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, June 1, 1932.

BLANC FIXE.—The blanc fixe market is rather quiet at present. Prices are holding to previously quoted levels. The pulp is offered at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. Shipments against contract are going forward with regularity. Prices are generally holding to schedule. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is listless. Domestic standard ground is still quoted at 5 cents and finely ground at 7 cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is fairly persistent. The contract movement is well up to average. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market continues spotty. Contract shipments are going forward at a steady pace. Imported china clay is quoted at from $11 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Conditions in the chlorine market are fairly satisfactory. Supplies are moving into consumption in good volume. Prices are holding to schedule. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is slightly firmer. The grades of gum rosin used in the paper mills are now quoted at from $3.50 to $4.00 per 280 pounds, in barrels, at works; while wood rosin is selling at $2.80 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Trading in the salt cake market is somewhat restricted. Prices remain unchanged. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—The soda ash market is exhibiting a strong undertone. Contract shipments are moving in fair volume. Prices remain unchanged. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—Most of the business transacted in the starch market was along routine lines. Prices are holding to the recently revised levels. Special paper making starch is offered at $2.44 per 100 pounds, in bags; and at $2.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Paper mill demand for sulphate of alumina is moderately active. Prices are generally steady and unchanged. Commercial grades are quoted at $1.25 to $1.40; while iron free is selling at $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is comparatively quiet. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Offerings of talc are quite adequate to take care of current requirements. Prices are well maintained in most instances. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	5.00	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	5.25	@	—
M. F.	3.75	@	5.00
Coated and Enamel	6.25	@	9.75
Lithograph	6.75	@	11.25
Tissues—Per Ream—			
White No. 1	.65	@	.70
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
White No. 2	.50	@	.60
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middies	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¼	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¼	@	—

(Delivered New York)

News, per ton—			
Roll, contract	53.00	@	—
Rolls, spot	53.00	@	—
Sheets	58.00	@	—
Side Runs	38.00	@	42.00
Kraft—			
No. 1 Domestic	4.75	@	6.00
No. 2 Domestic	3.25	@	4.00
Southern	3.25	@	4.00
Imported	3.50	@	4.30
Boards—per ton—			
News	24.00	@	25.00
Straw	34.50	@	45.00
Chip	24.00	@	25.00
Binders' Boards	62.00	@	70.00
Standard 85 Test Liner	30.00	@	32.50
Sgl. Mla. Ll. Chip	35.00	@	37.50

(F. o. b. Mill)

Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	20.00	@	22.00
Dry	22.00	@	24.00

(F. o. b. Mill)

No. 1 Domestic	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	2.10	@	2.90
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.50	@	1.65
Mitscherlich unbleached	1.60	@	1.75
No. 2 strong unbleached	1.25	@	1.35
No. 1 Kraft	1.50	@	1.65
No. 2 Kraft	1.35	@	1.40
Sulphate—			
Bleached	1.85	@	2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—			
Bleached	2.10	@	3.75
Easy Bleaching	1.75	@	1.90
News	1.50	@	1.65
Mitscherlich	2.40	@	2.55
Kraft (Domestic)	1.50	@	2.75

(Delivered Paper Mills)

Soda Bleached	2.50	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	4.25	@	4.50
New White, No. 2	3.00	@	3.50
Silesias No. 1	3.75	@	4.00
New Unbleached	5.50	@	6.00
New Blue Prints	3.25	@	3.50
New Soft Blacks	2.75	@	3.00
Blue Overall	3.25	@	3.75
Fancy	1.50	@	1.75
Washables	1.25	@	1.50
Mixed Khaki Cuttings	2.50	@	3.00
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	3.25	@	3.50
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@	1.50
New Mixed Cuttings	1.60	@	1.75
New Light Silesias	3.40	@	3.50
Light Flannelettes	3.25	@	3.50
Unbleached Cuttings	5.50	@	6.00
New White Cuttings	4.75	@	5.00
New Light Oxfords	4.00	@	4.25
New Light Prints	2.00	@	2.25

Old Rags

No. 1 White Linens	5.25	@	5.50
No. 2 White Linens	4.50	@	4.75
No. 3 White Linens	3.25	@	3.75
No. 4 White Linens	1.75	@	2.25
No. 1 White Cotton	4.00	@	4.25
No. 2 White Cotton	3.00	@	3.25
No. 3 White Cotton	2.25	@	2.50
No. 4 White Cotton	1.40	@	1.50
Extra Light Prints	1.90	@	2.10
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.35	@	1.40
French Blue Linens	1.90	@	2.00
German Blue Linens	1.80	@	1.90
German Blue Cottons	1.20	@	1.25
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.25	@	1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.10	@	1.20
Domestic	1.15	@	1.25
Wool Tares, light	.90	@	.95
Wool Tares, heavy	.90	@	.95
Bright Bagging	.85	@	.90
Small Mixed Rope	.80	@	.90
Manila Rope—			
Foreign	1.50	@	1.60
Domestic	1.50	@	1.75
New Burlap Cut	1.65	@	1.75
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

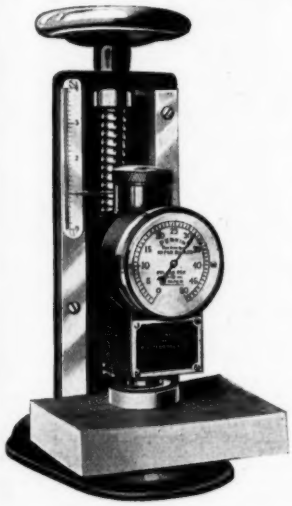
Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, white, No. 1	2.15	@	2.35
Hard, white, No. 2	1.50	@	1.60
Soft, white, No. 1	1.35	@	1.45
White envelope cuttings	1.70	@	1.80
Flat Stock—			
Stitchless	.65	@	.75
Overissue Mag.	.65	@	.75
Solid Flat Book	.60	@	.65
Crumped No. 1	.45	@	.50
Solid Book Ledger	1.75	@	1.85
Ledger Stock	.60	@	.70
New B. B. Chips	.20	@	.30
Manilas—			
New Env. Cut.	1.40	@	1.50
New Cuttings	1.15	@	1.25
Extra No. 1 old	1.00	@	1.05
Print	.40	@	.45
Bogus Wrapper	.40	@	.45
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.80	@	.90
News—			
No. 1 White News	1.25	@	1.35
Strictly Overissue	.35	@	.45
Strictly Folded	.30	@	.35
No. 1 Mixed Paper	.20	@	.25

PERKINS PRESSURE BULKER

Co-ordinates sheet count with bulk in inches.



Positive uniform standard for gauging bulk of paper. Simply place sheets between contact faces and clamp down until desired pressure is indicated on the dial. The exact thickness can then be read from the vertical scale.

B. F. PERKINS & SON, INC.,
HOLYOKE, MASS.

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High speed production makes it costly and difficult . . . AMIJEL does not have to be cooked, just add in dry form to the beater.

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Successors to
H. C. Clark & Son Machine Co.

PAPER MILL MACHINERY
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Revolving Paper Cutters—Rag Cutters—Cylinder Paper Machines—Washing and Beating Engines—Chilled Iron and Paper Calenders—Fan and Stuff Pumps—Engine Roll Bars and Bed Plates—Cylinder Molds—Marshall Drives—Slitters and Rewinders—Reels—Dryers with Improved Packing Boxes—Wet Machines—Gun Metal and Rubber Rolls—Rolls Reground.

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All types and shades of Oxides of Iron

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ANY GRADE — ANY QUANTITY

THE CASEIN MFG. COMPANY OF AMERICA, Inc.
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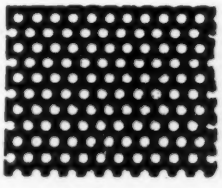
Oldest and Largest Producers of Casein in America

Perforated Metal Screens

For Pulp and Paper Mills



STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

".063" Round

CHARLES MUNDT & SONS
63-65 FAIRMONT AVE. JERSEY CITY, N. J.

Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finished Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Pts—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¾	@	.10¼
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05½	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¾	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¾	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.25	@	—
No. 2 Kraft	3.25	@	—
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.07	@	.07¾
White Tissue	.07¼	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.75	@	1.80
No. 1 Hard White	1.55	@	1.60
No. 1 Soft White	1.40	@	1.45
Ledger & Writings	.55	@	.65
Solid Books	.50	@	.55
Blanks	1.15	@	1.20
Krafts	.95	@	1.00
New Kraft Cuts	1.40	@	1.50
Manila Env. Cuts	1.40	@	1.50
Ex. No. 1 Manila	1.00	@	1.10
Print Manila	.35	@	.40
Overissue News	.45	@	.55
Old Newspapers—			
No. 1	.45	@	.50
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.25	@	.30
No. 2	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¾
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04

(Delivered Philadelphia)

News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	30.00	@	32.00
Chip Board	25.00	@	27.50
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	63.00	@	65.00
Carload lots	62.00	@	67.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.05	@	.05½
New White, No. 2.	.04	@	.04¼
Light Silesias	.04	@	.04½
Silesias, No. 1	.04	@	.04½
Black Silesias, soft.	.04	@	—
New Unbleached	.05½	@	.06
Washable, No. 1	.02	@	.02½
Blue Overall	.04	@	.04½
Cottons—According to grades—			
Washable, No. 2	.01½	@	.02
New Blue	.01¾	@	.02
Fancy	.02	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01¾	@	.02
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O.D.	.04½	@	.05
No. 2 Mixed	.03½	@	.04
Corduroy	.02½	@	.03
New Canvas	.06½	@	.07
New Black Mixed.	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.50
M. G.	3.50	@	4.00
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1	1.00	@	1.10
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White.	1.90	@	2.00
No. 2 Hard White.	1.75	@	1.80
No. 1 Soft White.	1.60	@	1.70
No. 2 Soft White.	1.40	@	1.50
No. 1 Mixed.	.45	@	.55
No. 2 Mixed.	.40	@	.50
Solid Ledger Stock.	1.00	@	1.10
Writing Paper	.80	@	.90
No. 1 Books, heavy.	.60	@	—
No. 2 Books, light	.45	@	—
No. 1 New Manila.	1.25	@	1.50
No. 1 Old Manila.	1.00	@	1.25
Print Manila.	.45	@	—
Container Manila	.40	@	.45
Old Kraft.	.90	@	1.00
Common Paper.	.20	@	—
No. 1 Mixed Paper.	.25	@	.30
Straw Board, Chip.	.25	@	.35
Binders Board, Chip.	.25	@	.35
Corrugated Board	.35	@	.40
Overissue News	.45	@	.50
Old Newspaper	.30	@	.35

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¾
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¾	@	.03¾

(F. o. b. Boston)

Southern Kraft	.03¼	@	.03½

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¾

(Delivered New England points)

News Print, rolls	—	@	52.50
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.50
No. 2 Hard White	2.25	@	2.50
No. 1 Soft White	1.40	@	1.60
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.30	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.90	@	1.10
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.80	@	.90
White Blank News	1.20	@	1.30
Kraft No. 1	.70	@	.80
Manila	.80	@	.90
No. 1 Mixed Papers	—	@	.17½
Print Manila	.35	@	.40
Overissue News	.35	@	.45
Old Newspapers	.22½	@	—
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.20	@	.22½
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.75	@	.80
Manila Rope—			
Foreign	1.40	@	1.60
Domestic	1.55	@	1.75
Transmission Rope	1.00	@	—
Mixed String	—	@	.32½
Jute Rope	—	@	.85
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.65	@	1.00
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.75	@	1.00
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.80	@	.90
New Burlap Cutting	1.00	@	—
Australian Wool Pouches	—	@	1.50
Heavy Baling Bagging	1.00	@	1.25
Paper Mill Bagging	.60	@	.70
Bagging No. 2	.30	@	.35
No. 1 Burlap	2.75	@	3.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.01½
New White No. 1.	.04½	@	.04¾
New White No. 2.	.03	@	.03¾
Silesias No. 1	.04½	@	.05
New Black Silesias	.02½	@	.02¾
New Unbleached	.04½	@	.05¼
Fancy	.03	@	.03½
Washable	.02	@	.02½
Cottons—According to grades—			
Blue Overalls	—	@	.05
New Black, soft	.04	@	.04¼
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	.08	@	.08½
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	1.00	@	1.12½
Thirds and Blues—			
Repacked	—	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.53	@	.58
No. 2	.43	@	.48
No. 3	.43	@	.48

Foreign Rags
(F. o. b. Boston)

Dark Cottons	—	@	.60
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.60	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	—	@	1.00
Old Linsey Garments	.65	@	.70

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	3.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	52.50	@	53.00
Sheets	57.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	45.00	@	—
Sulphite, news grade	40.00	@	—
Sulphite, bleached	58.00	@	65.00
Sulphate	55.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.50	@	—
Soft White	2.25	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock.	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.65	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
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PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

SIXTIETH YEAR

Published Every Thursday by the LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President — J. BANNINGA, Sec.-Treas.

Published at 34 No. Crystal St., East Stroudsburg, Pa.

Executive and Editorial Offices: 10 East 39th Street, New York

Chicago Office: 123 West Madison St.

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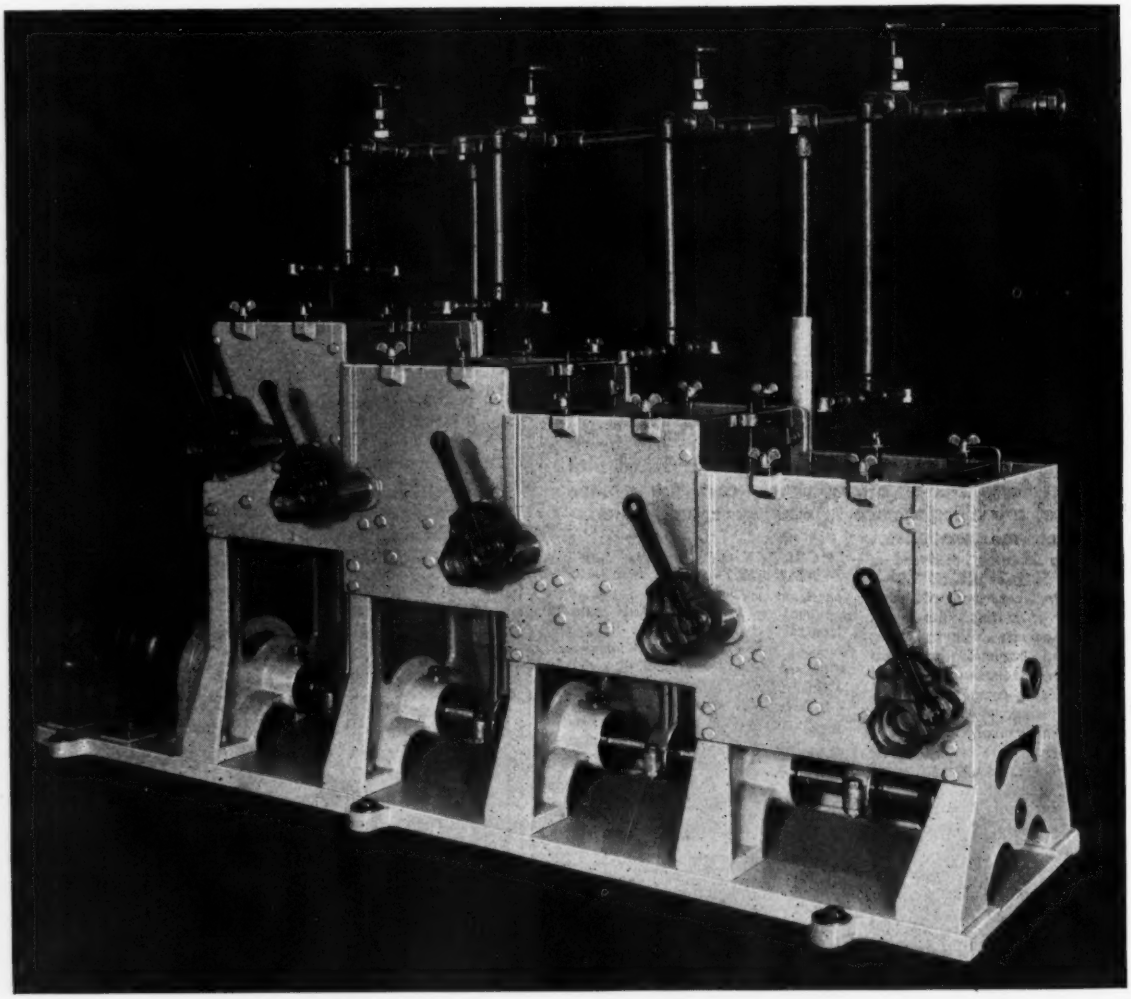

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